

Socio-Economic Differentials of Antenatal Health Care Utilisation in Ekiti State, Nigeria.

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ABSTRACT

This study examined how socio-economic factors influence the pattern of antenatal care (ANC) utilization. Specifically, the patterns of ANC was analysed while statistical association between socio-economic factors and ANC utilisation was analysed using chi-square analysis. Andersen Behavioural Theoretical Model guided the research process. This is a cross-sectional survey with the use of structured interviews for data collection among nursing mothers aged 15-49 years with at least a child aged one year. Multi-stage random sampling was used to identify and contact the 444 household respondents across six local government areas of the State, that is, two local government areas from each of the three senatorial districts. A pretest was conducted to assure of the reliability of the instruments while pilot test was conducted for validity. The Statistical Package for the Social Sciences version 22.0 was used for data analysis. Findings show that nursing mothers have adequate knowledge of ANC and child health services. 87% of the mothers utilized modern ANC while about 13% utilized the traditional or spiritual healing homes. Over 80% have at least two ANC contacts and there was average of five contacts starting in the first trimester. Age, income, religion, ethnic status are significant explants of utilization of ANC while employment status, level of educational, marital status are not. The most significant factor is the positive relationship of Income to patronage of modern ANC service and the need to improve access of non-Yoruba ethnic group women to ANC and other maternal and child health care services. Availability Family support and improved economic status are booster factors to ANC utilisation and promotion of maternal and child health care utilisation.

Keywords: Socio-economic Factors, Utilisation, Antenatal Care, Maternal Health, Child Survival

INTRODUCTION

Antenatal health care is one of the determinants of maternal health and Under-5 health/survival and it is concerned with the health of the mother and foetus. The purpose of antenatal care is to encourage good health in every expectant and lactating mother, to enable her to have normal delivery and a healthy baby and to teach the art of Under-5 care. Antenatal care refers to the care that is given to the pregnant women from

the time that conception is confirmed until the beginning of labour (Adegbola, 2018) (Fraser, 2006)

It must be stated that, not only is antenatal care attendance important, but also the timing of first contact, frequency of contacts and place of contacts, are essential for the survival of the foetus, safe delivery by the mothers and generally to remove neonatal mortality (Disu, 2016). Complete antenatal care attendance is the key component of safe motherhood which lies as the foundation for basic health services, equity, emotional and psychological support. Antenatal care provides the opportunity of monitoring the progress of pregnancy so that any deviation from normal can be detected at an early stage before serious complication occurs to the Under-5 or the mother (Black & Li, 2012).

In addition to the essential roles of mothers' antenatal health care attendance in Under-5 survival, the social and economic realities of the mothers are equally important. Kayode, Adekanmbi & Uthman (2018) report that women's socioeconomic characteristic had significant influence on Under-5 survival with children of low wealth quintile women having the odd of survival. Ojewunmi & Ojewunmi (2012) found that single mothers were more likely than currently married mothers to experience the loss of Under-5 before the 5th year of life. Also Ogunjuyigbe (2014) found that rural women reported higher under-five mortality than urban women. These underscore the impact of socioeconomic factors in maternal related health actions. Nwosu and Ataguba (2019) using the 2013 NDHS data, identified economic inequalities as consistent determinants of ANC utilisation while zone of residence, women's education and employment, residence, ethnicity, spousal education and spousal power relations are significant factors. Sui, Ahuru, Huang, Anser and Osabohien in a study of Delta State, Nigeria hinged also on the much significant effect of affordability (distance, lack of health insurance) and health education to access of ANC. In another study conducted in Zaria, Kaduna State of northern part of Nigeria, women educationally disadvantaged have poor ANC utilisation due to poor health awareness and poverty. Dairo and Owoyokun (2010) conducted study in a typical southwest Yoruba city of Ibadan. It was found out that urban, Muslims more than Christians, older women are more likely to utilise ANC services. Fagbamigbe and Idemidia (2015) explaining the reasons for non-use of ANC or barriers to ANC use, from the perspectives of non-users across Nigeria identified three broad issues for non-use as affordability, availability (transport cost) and distance to health facility. Generally the three factors can be summarised as ANC access issues.

In this study socioeconomic factors include social (Age, education, religion, marital status and type of marital union, ethnicity), economic (employment status and employment type, income) and political division (senatorial districts and local government areas) conditions of the respondents representing the nursing mothers with at least one year old child in Ekiti State. The conceptual framework used in the study was adapted from the Anderson and Newman (2015) framework for health service utilization. This study adapted some of the 'predisposing', 'enabling' and 'need' factors that have been shown to influence health service utilization. The 'predisposing' factors were grouped into mother and under-5's characteristics. The under-5's characteristics include: Under-5's sex and birth order. The mother's characteristics were made up of the socio-demographic characteristics. These include: 'the mother's age', 'educational attainment', 'occupation', 'marital status', 'place of usual residence', 'religion' and 'region'. The 'enabling' factors of healthcare service utilization have been previously classified into family and community factors in other studies. The enabling factors in this study focused on: 'antenatal care utilization', 'place of delivery', 'wealth status' and 'accessibility' to health services. The 'need' factors include: 'pregnancy-wantedness' and 'birth size'.

THEORETICAL GUIDE TO THE STUDY

The Andersen behavioural Model guided this study. The model describes the various behavioural factors that are needed to explain utilisation of health services. The model focuses on three core factors to explain healthcare utilisation: predisposing, enabling and need factors (Andersen 1968). The predisposing factors

include the social and demographic structures of the individuals and groups and the cultural or religious factors shaping health beliefs. The enabling factors include family resources like level of income and type of occupation, in African context it will include the family structure of either nuclear, extended and number of household members. It is also extended to community structure. The need factors include perceived need for the health service and the evaluation of the quality of the health care system. Though the Model was established to explain United States health care system, it has been adapted severally and widely for all societies (Andersen and Newman 1973). The model focuses on the factors that challenge adequate health decisions and actions by the vulnerable, poor, rural sections of the society.

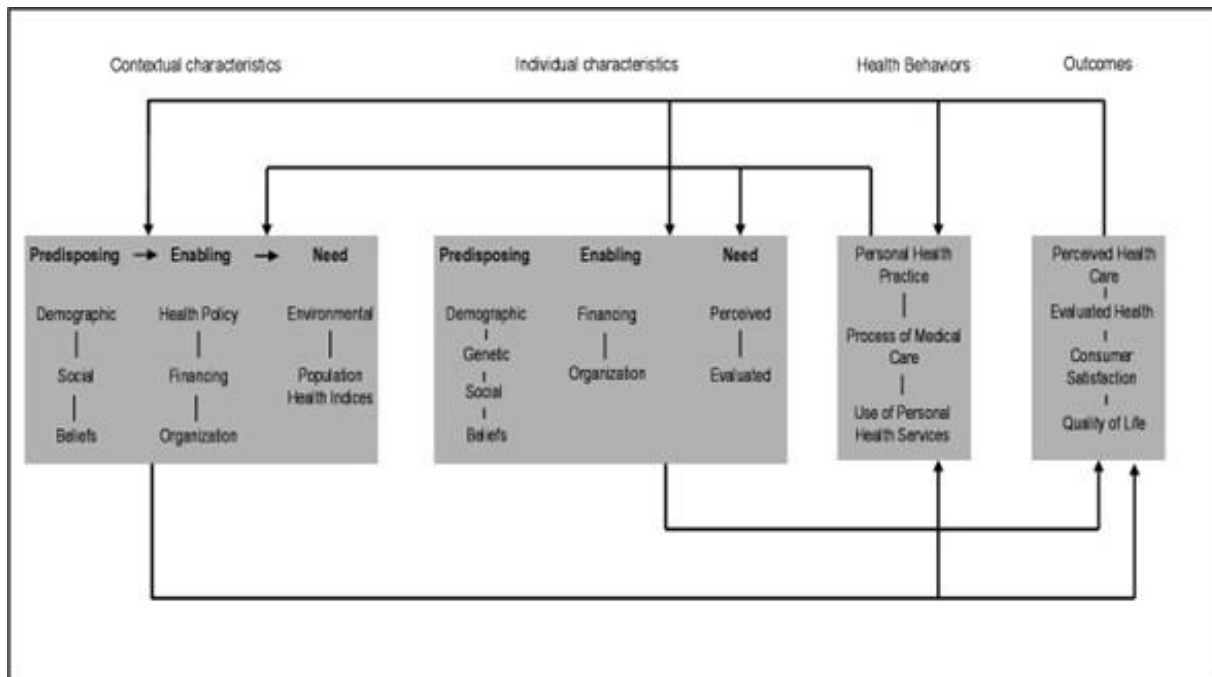


Figure 1: Andersen Behavioural Model as adapted from Lederle M and Bitzer, J.T (2021)

An individual is more likely to take expected and desirable action when both the predisposing conditions like demographic, social structure and health beliefs are favourable. For instance a female will access antenatal service as expected when her demographic factors, family structure and belief system are adequate to promote desirable decision and action. For this study, the second factor is very important which the enabling factor is. Enabling health policy especially the structure of maternal and child health including antenatal, immunisation, child delivery, cost of services, distance to the health facility and perceived quality of the maternal and child health services. In this context, Finance is the perceived cost of the service which is determined by the method of payment for the health service and the cost in itself. Health financing has been central to the attainment of universal health coverage especially eliminating out of pocket expenditure and enhancing health insurance programme (pre-paid health service system guaranteed mostly by public fund) especially to the resource scarce cohorts of the population (Carhin and Doussou 2021). Organisation also includes the choice health consumers make between private, public, traditional and spiritual centres of maternal and child care. It will also explains the tiers of health care in Nigeria like among specialist, teaching, general or primary health care facilities. Nigeria regrettably operates a health system where individuals have free choice of place of treatment irrespective of the adequacy or effectiveness of the health facility.

The third factor is the Need condition, that is, according to Andersen (1968), has two variables as response variable and illness variable. Not only must the pregnant woman and her significant others know there is a need for ANC and other health care, but they must appropriately make decision and timely actions about where to go, time to go and how to proceed.

For this study, the conceptual framework is the factors of socioeconomic conditions of pregnant women which is the predisposing factor, it also include the enabling factor of finance, analysis that explained health behaviours of the respondents in respect to antenatal care utilisation.

METHOD

This study adopted a cross sectional research design with the use of structured interview schedule for data collection. The study population include nursing mothers with at least a child not less than one year old at the time in Ekiti State. Ekiti State is located in southwest Nigeria and carved out of the old Ondo State in October 1996. It has three senatorial districts and 16 local government areas with the State capital as Ado Ekiti. The state has 2006 census population of 2.4 million and a projected population of 3,270.800 in 2017 (National Bureau of Statistics, 2017). There are three specialist hospitals located in each of the senatorial district headquarters (Ikole, Ijero and Ikere) while the state capital (Ado Ekiti) has the referral hospital, teaching hospital. There are also 313 primary health care facilities of varied degrees of quality and accessibility and 20 general hospitals. These facilities are established and funded by the state government while there is a federal government funded tertiary hospital in Ido Ekiti.

A multi-stage sampling procedure was used to contact the 444 sample size distributed proportionately across six local government areas according to their respective 2017 projected population. A random sampling technique was used get to the household level respondents. A structured Interview schedule was developed, pretested and pilot tested before the final administration. Following this, the construct validity test was analysed based on the Rasch model with in-fit and outfit mean square (MNSQ) value. Reliability of the instrument was measured using Cronbach alpha reliability test with appropriate values range. The reliability coefficient ranges between 0 and 1. While 0 indicates absolute inconsistent, 1 indicates perfect reliability. The closer the coefficient to the two extremes, the more they share their strengths. Therefore, a reliability coefficient below 0.5 is poor, 0.6 to 0.7 is acceptable, and 0.7 to 0.9 is good while upward is excellent. The Statistical Package for the Social Scientists (SPSS 22.0) was used for the data analysis.

The survey interviewees were duly informed about the purpose and implications of participating in the study. Their consent to voluntarily participate in the interview was obtained either by their signature or thump printing on the consent form. Fieldwork was conducted by three trained female personnel who in themselves are trained in interpersonal communication and community dialogue. Research ethical clearance certificate was earlier provided by the office of Research and Development of Ekiti State University and the Compliant Committee provided practical guide all the period of field work and data analysis. The data was analysed using descriptive and inferential statistics as applicable to stated objectives of the study.

RESULTS

Pattern of Antenatal utilisation is presented for the three senatorial districts while the total serves as the aggregate for the state. From Table 1, almost all the respondents have knowledge of ANC services but Ekiti Central district has near absolute knowledge. Again, the same number of percentages have accessed the service with Ekiti North district having the least access to the services. A little above half of the respondents were provided with traditional ANC. Across the three districts, Most pregnant women in Ekiti South districts were provided with traditional ANC compared to other districts. Also about two third of pregnant women in Ekiti North district were provided with Focused ANC which is the highest in the three districts. Traditional ANC has been the age old clinic based ANC entailing pregnant women to attend at specified time with others except on emergency or as prescribed by the medical officer in charge. It involves health education and counselling, clinical review, diagnosis of each attendees and identifying risk indicators for each case. Focused ANC on the other hand is the WHO (2015) recommended latest model of ANC services.

It is an integrated health services for pregnant women with encouragement for husbands to attend. Clinical meetings are less regular but specific to the needs of pregnant women attending ((Oshinyemi, Aluko, & Oluwatosin, 2018)) did a comparative exposition of the two types of ANC. This study shows that there is low practice of focused ANC in Ekiti State.

Further indicators of quality ANC include place of service provision and who administered the services. 76 percent of pregnant women attended public health facility which includes the primary, secondary and tertiary clinics or hospitals. It must be stated that there are two tertiary hospitals in the state owed by the state and federal governments respectively and located in Ekiti Central and Ekiti North districts. For maternal health services, patronage of tertiary hospitals is mostly by adjourning local government areas irrespective of senatorial districts except on referred Emergency Obstetric Care (EOC). ANC attendance is to basic, or comprehensive clinics and general or specialist hospitals in the state. Ekiti South district recorded a higher percentage of pregnant women that patronised public health facilities. 15 percent of pregnant women utilised private health facility of varied degree of sizes and quality. More respondents (about 16%) used private health facility in Ekiti Central district being the most urban area of the state compared to 14% in Ekiti North and about 8% in Ekiti South. About 10 percent across the three districts used either the traditional birth attendants or spiritual homes for ANC which according to NDHS 2018 are described as "Home", or unskilled facility. Providers of ANC services measure the quality of the service. Since about 10 percent patronised less approved route of ANC, it presupposes that providers also will be less acceptable. From the study, auxiliary nurse, religious leaders and TBAs are less approved as ANC service providers. Though TBAs are recognised in maternal health care as service providers, quality service is mostly compromised. Auxillary nurses are informally trained health assistants in private clinics and hospitals and they are in the category of quacks when left alone to operate especially in rural areas. In a national survey across the 37 political units of Nigeria; 2018 Nigeria Demographic and Health Survey reported that 90.6 percent of pregnant women patronised wholesome ANC service provider which include doctors and Nurses, This study however shows about 95 percent, a significant increase. It must be noted that Ekiti South District has the despairingly lowest percentage of access to doctor's service (NPC 2019). However, Ekiti Central District, the most urban area has the highest patronage of unwholesome facility (spiritual and traditional homes) for ANC (14.3%), compared to 6.2% in Ekiti North and 7.4% in Ekiti South.

This study equally explored spousal involvement in ANC in Ekiti State. About 42 percent of pregnant women reported being accompanied by their husbands during ANC contact. This shows that this practice especially in Focused antenatal care is still at low level across the senatorial districts. However among the 252 respondents who got accompanied by their spouse, about a quarter (25.9%) reported that spouses usually do this while 74% reported sometimes (more than once). In patriarchal society where maternal and child care is exclusive of the female gender except decision making and funding for health care, over forty percent physical and psychological support to pregnant women can be encouraging. Studies have shown positive relationship between husbands involvement in ANC and maternal health outcomes (Teklesilasie and Deressa (2018) study in Ethiopia points the fact that pregnant women assisted by their husbands are more likely to use skilled birth attendants at delivery. The latter study reported that more than half of husbands accompanied their wives to ANC follow-up contacts. The same conclusion was drawn with a PhD thesis by Shaiekh (2021), that involving husbands in maternal and child health decisions was associated with utilization of skilled birth attendants with adequate health outcomes.

Further information shows that more than 80 percent of the pregnant women attended at least four ANC contacts, about a quarter attended 2-3 contacts while about five percent only one contact. This is far above the global average of four ANC contacts and over 80 percent of pregnant women undertaken at least one contact. This however varies and depending on the timing of the first contact (Sarker, Rahman, Rahman, Khalli, Hasan et al 2020; Jiwani, Amouzou-Aguirre and Boerma, 2020). In Nigeria, this study also shows an

improvement compared to a national survey report of 58 percent having at least 4 contacts, 20 percent with eight or more and 25 percent with no ANC contact (NPC 2019, Fagbamigbe, Olaseinde and Sethare (2021). This study observes a direction of achieving 2016 WHO guideline on the minimum number of ANC contacts applicable to Ekiti State which is ideally eight (WHO, 2016)). Further analysis shows that about 69 percent of ANC contacts took place from the second month, 26 percent of all ANC contacts took place from the fifth month and four percent of all contacts took place at the first month of pregnancy. This shows that about 74 percent of all ANC contacts took place in the first trimester. In an earlier study in Ekiti State, though using tertiary health facility’s ANC attendees, only 22.7 percent of ANC users booked early, meaning within 14 weeks of gestation (Aduloju, Akintayo, Ade-Ojo, Awoleke, Aduloju, & Ogundare, 2016)

Table 1: Respondents’ Pattern of Antenatal Healthcare Utilization across senatorial districts

Variables	Utilisation of ANC in percentages across Senatorial Districts*			
	EC-N=146)	EN-N=151)	ES-N=141)	Total=-438)
Know what ANC is all about:				
No	0.7	4.6	2.1	2.5
Yes	99.3	95.4	97.9	97.5
Ever access ANC services:				
No	2.7	6.6	2.1	3.9
Yes	97.3	93.4	97.9	96.1
type of ANC services provided:				
Focused ANC	49.9	65.7	10.6	44.2
Traditional ANC	50.1	34.3	89.4	55.8
Where ANC was received:				
Private health facility	15.8	13.9	7.8	15.4
Public health facility	69.9	70.9	85.8	75.5
Spiritual home	9.9	3.2	3.8	5.7
Traditional Birth Home	4.4	3.0	3.6	3.4
ANC provider:				
unskilled nurse	12.7	16.0	11.4	3.4
CHEW	15.1	10.2	10.7	9.1
Doctor	37.0	20.4	9.1	22.6
Trained Midwives/Nurse	49.0	48.2	66.0	59.7
Spiritual Home (<i>Agbebi</i>)	0.0	1.0	0.7	0.9
Traditional Birth Attendants	3.4	4.2	2.1	3.7
Ever attend ANC with husband:				
Yes	25.4	48.2	54.3	42.5
No	74.6	51.8	45.7	57.5
Husband volume of accompany to ANC:				
Sometimes	89.4	79.4	59.7	74.1
Regularly	10.4	20.6	40.3	25.9
Number of ANC contacts:				
4+ times	92.5	60.3	76.6	86.2
2-3 times	4.8	25.2	29.2	26.2

Once	2.7	8.0	4.2	4.6
Age of pregnancy at first ANC:				
≤ 1 month	3.4	3.9	6.5	4.3
2-3 months	69.1	71.2	60.9	69.5
4 months and above	27.5	24.9	32.6	26.2

*EC is Ekiti Central, EN is Ekiti North, ES is Ekiti South (Source: Aladejare, 2023)

Table 2 reveals the association between socioeconomic factors of respondents and antenatal healthcare utilization. Age of pregnant women does not significantly relate with utilisation of ANC in the study; both the younger women and the older women have higher utilisation percentages compared to middle reproductive aged women (30-45 years). However this finding will be hinged on other socio-economic factors. Economic factors especially employment status of respondents and income show a significant relationship. Unemployed pregnant women have significantly poor utilisation which is simply connected to low income on the Table. This is further explained by the fact that pregnant women employed by government and those in engaged in trading have higher utilisation of ANC compared to women involved in private work like hairdressing, tailoring, and confectionery and women employed by others. The social explanation can be the tendency for women in public employment and traders to have much more control over their time schedule and prioritise ANC contacts than others. This can be a measure of economic power.

Further analysis shows positive association between level of education and utilisation of ANC. Pregnant women with at least a secondary school education have better utilisation. Equally religion does not have significant association with ANC utilisation since the sampled population is Christian dominated. This is also the situation with ethnic origin of the respondents. The sampled population is dominated by Yoruba pregnant women who are not in a marital union like the divorced, separated, and widowed and the never married. This shows that the active presence of familiar significant others is a booster to ANC services.

Table 2: Respondents’ socio-economic factors and antenatal healthcare utilization

Variables	No N=17)	Yes N=421)	χ^2	p-value
Age: <29 years	23.5	11.6	3.243	0.198
30-44 years	29.4	47.7	p-value<0.01	
45+years	47.1	40.7		
Employment status				
Unemployed	70.6	24.0	18.534	0.000***
Employed	29.4	76.0	p-value<0.001	
Employment type:				
Artisans	11.8	19.3	45.638	0.000***
Private employed	11.8	15.0	p-value<0.001	
Public employed	0.0	23.3		
Trading/business	5.9	18.5		
monthly income (in naira)				
<#50,000	60.0	84.4	2.839	0.417
#50,000-#99,999	40.0	13.8	p-value<0.01	
#100,000+	0.0	1.8		
Level of Education				

Degrees/Higher Diplomas	5.9	23.8	14.219	0.014*
NCE/OND	17.6	40.1	p-value<0.05	
No formal education	11.8	2.4		
Primary	11.8	5.7		
Secondary	52.9	28.0		
Religion:				
Christian	64.7	84.1	4.649	0.098
Islam	29.4	14.0	p-value<0.01	
Traditional	5.9	1.9		
Marital status				
Divorced	11.8	3.3	10.865	0.012*
Married living with spouse	52.9	83.4	p-value<0.05	
Separated	35.3	13.1		
Single	0.0	0.2		
Ethnicity				
Hausa	0.0	2.9	2.411	0.492
Igbo	0.0	5.2	p-value<0.01	
Others	5.9	2.1		
Yoruba	94.1	89.8		
Marriage type				
Monogamy	64.7	86.2	7.069	0.029*
Polygyny	35.3	13.8	p-value<0.05	

Source: Aladejare 2023

DISCUSSION

The findings show a pattern of antenatal care utilisation consistent with southwest Nigeria with much awareness and high utilisation above 90 percent as indicated in 2018 NDHS. The findings of Dahiru and Oche (2015) found that factors such as maternal and husband's education level, place of residence, wealth level and parity to greatly predict utilization of Maternal and Child health (MCH) Services. Other authors such as Oluwamotemi, Edoni, Ukoha, and Adelekan (2020) explored factors associated with the utilization of ANC services among women of child bearing in Osogbo. Their findings established factors such as family members network is a determinants of antenatal service uptake. Moreover, Mekwunyei and Odetola (2020) further explore the extent and determinants of maternal and child health care utilization among pregnant teenagers in Delta State. The study found a significant association between utilization of health service and maternal education, availability/accessibility of facilities, cost of medical care and coercion/violence from partner.

In a similar study conducted in Ghana by Afaya *et al.* (2020) among 322 women who gave birth and attended the postnatal clinic corroborated with this findings. Their finding showed that age of mothers and not married/divorced were inversely associated with utilization of four or more health services which is a confirmation of this study. Notwithstanding the high utilisation as shown in this study, data about child survival in the state is still unacceptable. Ekiti state is having the second highest U-5 mortality rate of 86 and highest rate of teenage pregnancy in the geo-political zone (National Bureau of Statistics, May 2018).

CONCLUSION AND RECOMMENDATIONS

Ekiti State has a social index that is far higher than the national average especially in level of education, urbanization and access to health care. But the economic index is ironically one of the lowest in the country in the areas of high poverty level and high unemployment rate (National Bureau of Statistics 2022). The fact that Ekiti State is having high access to ANC services and also high mortality of both infant and children is of concern to public, private and civil society in the State. It will be concrete to infer that the economic factors in the state need to be addressed in order to improve the economic livelihood of the people especially women of reproductive age in order to directly impact on child survival. In specific terms, the following social and health policy recommendations are germane:

1. Concrete incorporation of spiritual and traditional homes like the *Agbebis* (Church maternity homes) and *Alawemos* (traditional birth attendants) into the maternal and child health care programme. This should put practice to the content of National Health Policy and Act. The 10% patronage of “Home” in maternal health makes a lot of significance in maternal and child survival especially in Ekiti State, Nigeria
2. Focus on social livelihood of reproductive age females, either married or unmarried should be a critical public intervention towards comprehensive attainment of sustainable development goals especially in health and gender fields.
3. Socio-cultural barriers to accessing quality maternal health care services by females of low socio-economic status should be addressed especially affordability of services and approachability of health workers.

REFERENCES

1. Adegbola, O. (2018). Population Policy Implementation in Nigeria (1988-2003). *Population Review*, Vol. 47, No. 1, 2018. 57-110
2. Adepoju A.O., Akanni O. & Falusi A.O. (2012). Determinants of Under-5 Mortality in Rural Nigeria. *World Rural Observations*, 4(2) 38-45. Retrieved from <http://www.sciencepub.net/rural>. 12 October 2023
3. Aduloju, O. P., Akintayo, A. A., Ade-Ojo, I. P., Awoleke, J. O., Aduloju, T., & Ogundare, O. R. (2016). gestation age at initiation of antenatal care in a tertiary hospital, southwestern Nigeria. *Nigerian Journal of Clinical Practice* , 19:772-7.
4. Afaya, A., Azongo, T. B., Dzomeku, V. M., Afaya, R. A., Salia, S. M., Adatara, P. Adadem, D. (2020). Women’s knowledge and its associated factors regarding optimum utilisation of antenatal care in rural Ghana: A cross-sectional study. *PloS one*, 15(7), e0234575.
5. Aladejare, A. A. (2023). Assessment of the influence of socio-economic factors on ante-natal health care and child survival in Ekiti State, Nigeria. A Master’s Degree Thesis submitted to the Department of Gender Studies, Ekiti State University, Ado Ekiti, Nigeria
6. Andersen, R. (1968). A behavioral model of families’ use of health services (Research Series No. 25). Chicago, IL: Center for Health Administration Studies, University of Chicago.
7. Andersen, R and Newman J.F (1973) societal and individual determinants of medical care utilization in the United States. *Milbank Mem Fund Quarterly Health Society*. 5 (1) 95-124
8. Cashin C, Doussou JP. Can National Health Insurance Pave the Way to Universal Health Coverage in Sub-Saharan Africa? *Health Syst Reform*. 2021 Jan 1;7(1): e2006122. doi: 10.1080/23288604.2021.2006122. PMID: 34965364.
9. Black, R.E., & Li Liu (2012). Global Under Five Mortality: Where Do We Stand Today? Johns Hopkins, Bloomberg School of Public Health for the Under-5 Health Epidemiology Reference Group of WHO and UNICEF.
10. Dahiru, T., & Oche, O. M. (2015). Determinants of antenatal care, institutional delivery and postnatal

- care services utilization in Nigeria. *Pan African medical journal*, 22(1).
11. Disu, E. (2016). Challenges of Neonatal Care in Nigeria: What Solutions for Under-5 Survival? *Save the Children*, 201 Fasina, F., Oni, G., Azuh, D., & Oduaran, A. (2020). Impact of mothers' socio-demographic factors and antenatal clinic attendance on neonatal mortality in Nigeria. *Cogent Social Sciences*, 6(1), 1747328.
 12. Fagbamigbe et al (2021) Sub-national analysis and determinants of numbers of antenatal care contacts in Nigeria: assessing the compliance with the WHO recommended standard guidelines. *BMC Pregnancy and Childbirth* (2021) 21:402 <https://doi.org/10.1186/s12884-021-03837-y>
 13. Fagbamigbe, A. F. And Idemudia E.A. (2015). Barriers to antenatal care use in Nigeria: evidences from non-users and implications for maternal health programming. *BMC Pregnancy Childbirth*. Apr 17:15:95. doi: 10.1186/s12884-015-0527-y.
 14. Fraser, M.& Cooper, B. (2015). Maternal education and Under-5 nutritional status in Bolivia: Finding the links. *Journal of Social Science & Medicine* 60 (2005) 395 – 407, Elsevier.
 15. Kayode, G.A., Adekanmbi, V.T. & Uthman, O. A. (2018). Risk Factors and a Predictive Model for Under-five Mortality in Nigeria: Evidence from Nigeria Demographic and Health Survey. *BMC Pregnancy & Under-5birth*, 12(10). Retrieved from <http://www.biomedcentral.com/1471-2393/12/10>.
 16. Jiwani SS, Amouzou-Aguirre A, Carvajal L, Chou D, Keita Y, Moran AC, Requejo J, Yaya S, Vaz LM, Boerma T. (2020) Timing and number of antenatal care contacts in low and middle-income countries: Analysis in the Countdown to 2030 priority countries. *J Glob Health*. Jun;10(1):010502. doi: 10.7189/jogh.10.010502. PMID: 32257157; PMCID: PMC7101027.
 17. Mekwunyei, L. C., & Odetola, T. D. (2020). Determinants of maternal health service utilisation among pregnant teenagers in Delta State, Nigeria. *The Pan African medical Journal*, 37(81).
 18. Lederle M, Tempes J & Bitzer, J.T (2021) Application of Andersen's behavioural model of health services use: a scoping review with a focus on qualitative health services research. *BMJ Open* 2021;11: e045018. doi:10.1136/bmjopen-2020-045018.
 19. National Bureau of Statistics. (May 2018). Multiple Indicator Cluster Survey 2016-17 (MICS), Final Report, Monitoring the situation of women and children. Abuja: NBS.
 20. National Bureau of Statistics (2022) Nigeria Multidimensional Poverty Index (2022). November, NBS
 21. National Population Commission (2019) Nigeria Demographic and Health Survey 2018. Abuja: National Population Commission.
 22. Nwosu, C.O and Ataguba, J.E (2019) Socioeconomic inequalities in maternal health service utilisation: a case of antenatal care in Nigeria using a decomposition approach *BMC Public Health* Nov 8;19(1):1493. doi: 10.1186/s12889-019-7840-8..
 23. Ogunjuyigbe, P. O., (2014). Under-Five Mortality in Nigeria: Perception and Attitudes of the Yorubas towards the existence of "Abiku". *Demographic Research*. Volume 11, Article 2: 43-56.
 24. Ojewunmi, T.K., & Ojewunmi, J.S., (2012). Trends in Infant and Under-5 Mortality in Nigeria: A Wake-Up Call Assessment for Intervention towards Achieving the 2015 MDGs.
 25. Oluwamotemi, C. A., Edoni, E. E., Ukoha, C. E., & Adelekan, A. L. (2020). Factors Associated with Utilization of Antenatal Care Services among Women of Child Bearing in Osogbo, Nigeria. *International Journal of Research and Reports in Gynaecology*, 32-42.
 26. Oshinyemi, T. E., Aluko, J. O., & Oluwatosin, O. A. (2018). Focused antenatal care: Re-appraisal of current practices. *International Journal of Nursing and Midwifery*, 10 (8), 90-98.
 27. Sarker, B. K., Rahman, M., Rahman, T., Rahman, T., Khalil, J. J., Hasan, M. et al. (2020). Status of the WHO recommended timing and frequency of antenatal care visits in Northern Bangladesh. <http://www.sciepub.com/reference/362125>
 28. Sui, Y. Ahuru, R.R. Huang K. Anser, M.K. and Osabohien, R. (2021). Household Socioeconomic Status and Antenatal Care Utilization Among Women in the Reproductive-Age. *Front Public Health* Sep 13:9:724337. doi: 10.3389/fpubh.2021.724337. eCollection 2021.
 29. Shen, C., & Williamson, J.B., (1997). Under-5 Mortality, Women's Status, Economic Dependency, and State Strength: A Cross-national Study of Less Developed Countries. The University of North Carolina Press.

30. Shuiekh M.A (2021) Thesis presentation: “Role of Husband (Involvement) in Utilization of Maternal Healthcare Services among Muslim Women of Rautahat District, Nepal”. <https://www.slideshare.net/>online Cited 28th October 2023
31. Teklesilasie W and Deresa W (2018). Husbands’ involvement in antenatal care and its association with women’s utilization of skilled birth attendants in Sidama zone, Ethiopia: a prospective cohort study. *BMC Pregnancy Childbirth* Aug 3;18(1):315. doi: 10.1186/s12884-018-1954-3.
32. WHO. (2016). 2016 WHO Recommendations: Antenatal Care for a Positive Pregnancy Experience. Retrieved from <https://www.who.int/docs/default-source/reproductive-health/maternal-health/anc.pdf?sfvrsn=5e2c740e2>.