Determinants of Antenatal Care Attendance among Pregnant Women in Selected Primary Healthcare Centres in Ibadan, Nigeria: A Cross-Sectional Study

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ABSTRACT

Background: *Despite global reductions in maternal mortality, antenatal care (ANC) attendance remains suboptimal in many low-resource settings. This study investigated the determinants of ANC attendance among pregnant women in selected Primary Healthcare Centers in Ibadan, Nigeria.*
Methods: *A cross-sectional study was conducted among 470 pregnant women in their third trimester attending four Primary Healthcare Centers between January-March 2024. A multi-stage sampling technique was used to select participants. Data were collected using a validated questionnaire assessing socio-demographic characteristics, enabling factors, and knowledge of ANC importance. Data analysis involved descriptive statistics and logistic regression.*
Results: *While most participants (82.8%) reported being discouraged by negative health worker attitudes, they demonstrated good knowledge of ANC importance. Logistic regression revealed significant associations between ANC attendance and parity (OR=6.952, p<0.001), health insurance coverage (OR=2.154, p=0.032), health workers' attitudes (OR=2.006, p=0.049), and husband support (OR=7.229, p<0.001). Only 7.7% of participants had health insurance coverage, and just 3.2% reported spousal accompaniment to ANC visits.*
Conclusion: *While knowledge levels were high, institutional and social factors significantly influenced ANC attendance. Interventions should focus on improving healthcare provider attitudes, expanding health insurance coverage, and strengthening spousal support systems.*

Keywords: Determinant, Antenatal care, Healthcare utilization, Pregnant women, Primary healthcare

INTRODUCTION

Maternal mortality has dramatically decreased in recent years around the world, dropping from 380 deaths per 100,000 live births in 2000 to 211 deaths per 100,000 in 2017.[1] The state of mothers is one of the most urgent global health issues. The health of women and children is an international issue and unfinished business. Governments and international communities must continue and speed up efforts to prevent maternal and child morbidity and meet the applicable Sustainable Development Goals.[2] The shockingly high rates of maternal mortality are a common topic of discussion in global health and development forums. Some countries have made notable strides; for example, the maternal death rate

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has dropped by 35% in Australia and New Zealand and by 16% in Central and Southern Asia.[3] Despite efforts, half of all maternal fatalities still occur in sub-Saharan Africa.[4] For instance, in East Asia, North Africa, South Asia, and Sub-Saharan Africa, the maternal mortality rate (MMR) declined by 69%, 66%, 64%, and 41%, respectively. The pattern and type of maternal outcomes have changed significantly around the world, with many deaths and morbidities now linked to the complications of underlying illnesses, such as indirect disorders.[2]

One such area where the maternal mortality ratio has not greatly decreased is Sub-Saharan Africa, which is home to 13% of the world's population yet accounts for 52% of all maternal deaths.[3] Despite several efforts to enhance mother and child health being made in Nigeria, the nation still has high rates of maternal mortality (576 per 100,000) and neonatal mortality (37 per 1,000 live births).[4] In comparison, these figures are 400 in Burkina Faso, 380 in Ghana, and 560 in Zimbabwe. Care for existing and prospective causes of maternal and neonatal mortality and morbidity can be provided during antenatal care. When women and children receive their first prenatal care visit is crucial to their health and well-being.

Because a sizable proportion of maternal and newborn deaths occur during these times, the care a woman receives throughout her pregnancy and in the first 24 hours after giving birth is crucial to their health and survival. It has been shown that antenatal care, which is given to expectant mothers before, during, and after delivery, improves both the mother's and the child's health.[5] Prenatal care is the care provided by skilled healthcare providers to pregnant women and adolescent girls to ensure the best health condition for mother and baby before, during, and after pregnancy.[6] Prenatal care is essential for recognizing risks, preventing disorders linked to pregnancy, and treating those conditions when they do arise.[7] Early attendances at antenatal care enables accurate assessment of gestational age for the treatment of preterm labor, screening for genetic and congenital disorders, provision of folic acid to lower the risk of neural tube defects, and screening and treatment for iron deficiency anemia and sexually transmitted infections.[7]

Additionally, during prenatal care, non-communicable illnesses like diabetes and tuberculosis can be identified, and women can get suggestions on lowering modifiable risks like smoking, binge drinking, drug usage, using over-the-counter medications, being obese, undereating, and occupational exposures. The World Health Organization (WHO) lists the following as essential prenatal care services: promotion of good health, screening for preexisting medical conditions in expectant women, early detection of problems, illness prevention, and labor preparation. The avoidance of malaria during pregnancy, tetanus immunization, iron and folate supplements, and other preventative measures are also included; and counseling and education regarding mothers' health and the health of their children.[2,8]

Empirical research has shown that women are unable to receive ANC because they are unaware of its importance, according to a study done in Ghana.[9] Pregnant women incur a

higher risk of losing both their lives and the lives of their unborn children if they do not receive adequate treatment from the time they find out they are pregnant until they give birth. Given this, it makes reasonable that receiving prenatal care early in pregnancy and continuing up to delivery is most advantageous. [10] According to research, women who receive high-quality prenatal care are more likely to experience a safe pregnancy and a simple birth.[11] In this study, the antenatal visits were conducted in accordance with the traditional paradigm, which is ordinarily employed for prenatal care during a healthy pregnancy. Due to this, women should go to an antenatal clinic every four weeks up until the 28th week of pregnancy, every two weeks from the 29th to the 36th week, and every week from the 37th week until the due date throughout the third trimester.

However, this study focused on pregnant women's knowledge of the significance of ANC attendance, as well as enabling variables such as health insurance, husband support, health staff' attitudes, and parity. Numerous factors have been identified to impact prenatal care attendance. According to several studies, including those by Panjaitan and Muunda, maternal antenatal care (ANC) attendance rises with educational level. Women's involvement in ANC will be affected by their understanding of its importance. Numerous researches have been conducted about ANC awareness, and the findings consistently demonstrate that pregnant women who fully comprehend the importance of routine ANC visits have higher attendance rates.[12,13] Similar research finds that a lack of knowledge is to blame for low ANC participation. [12] More education among pregnant women has been shown to enhance their chance of receiving prenatal care.[14] Therefore, women's health and education are crucial to their quality of life.

The purpose of this study is to investigate the factors that affect pregnant women's attendance at prenatal care at a few primary healthcare facilities in Ibadan, Oyo State. These women will benefit from improved antenatal care availability thanks to the study's findings, which will also assist to prevent other pregnancy-related problems and lower maternal mortality.

METHODS

Study Design and Setting

A descriptive cross-sectional study was carried out between January and March 2024 across four Primary Healthcare Centers (PHCs) located in different Local Government Areas (LGAs) within Ibadan, Nigeria. The selected facilities included Idi-Ogungun PHC in Ibadan North LGA, Oke-Adu PHC in Ibadan North East LGA, Odo-Ona Elewe PHC in Oluyole LGA, and Aba-Emu PHC in Ona-Ara LGA. This geographic distribution was intended to ensure representation from diverse areas within the city.

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Sample Size and Sampling

To determine an appropriate sample size for the study, Taro Yamane's formula was employed:

$n = N / (1 + N(e)^2)$,

where n is the sample size, N is the population size, and e represents the level of precision, set at 0.05. Using this formula, a total sample size of 488 participants was derived.

A multi-stage sampling technique was utilized to ensure representativeness and feasibility in data collection. In the first stage, four Local Government Areas (LGAs) - constituting approximately 35% of the total LGAs in the study region were selected through simple random sampling. In the second stage, one Primary Health Centre (PHC) was purposively chosen from each selected LGA based on antenatal care (ANC) attendance figures to ensure adequate participant availability. Finally, convenience sampling was used within each PHC to recruit eligible pregnant women who met the inclusion criteria and were available at the time of data collection.

Data Collection

Data for the study were collected using a validated three-section questionnaire designed to assess key dimensions relevant to antenatal care (ANC). The first section gathered information on the socio-demographic characteristics of the participants. The second section focused on enabling factors that influence ANC attendance, such as accessibility, affordability, and support systems. The third section evaluated participants' knowledge regarding the importance of ANC. The instrument demonstrated good reliability, with a Cronbach's alpha coefficient of 0.80, indicating strong internal consistency across the items.

Statistical Analysis

Data were analyzed using SPSS version 25.0. Descriptive statistics summarized frequencies and percentages. Logistic regression examined associations between enabling factors and ANC attendance at $p<0.05$ significance level.

RESULTS

Table 3: Influence of Enabling Variables on Antenatal Care Attendance (n=470)

Enabling Variables	YES		NO	
	Freq.	Percent	Freq.	Percent
Husband encourages and permits to come ANC	416	88.5	54	11.5
Husband provides all the financial resource	176	37.4	294	62.6
Husband accompanies me to ANC clinic	15	3.2	455	96.8
Time spends in antenatal clinic is too long (waiting hour)	122	26.0	348	74.0
Are you on Health Insurance Scheme	36	7.7	434	92.3
If yes, possession of Health Insurance Scheme promotes my ANC attendance	36	7.7	434	92.3
If no, possession of Health Insurance Scheme promotes my ANC attendance	66	14.0	404	86.0
Negative attitude of health workers discourages me from attending ANC	384	82.8	81	17.2
Lack of money discourages me From coming for ANC clinic	393	83.6	77	16.4
Cost of ANC services is high	99	21.1	371	78.9
Have enough money to pay for the services like PCV, urinalysis when you come for ANC visits?	390	83.0	80	17.0
Have you delivered before?	346	73.6	124	26.4
I attend ANC regularly because of my negative experienced during previous pregnancy	29	6.2	441	93.8

Results from Table 3 show that 88.5% of women had their husbands' permission and encouragement to visit an ANC clinic, whereas 11.5% did not. Only 37.4% of respondents reported that their husband had access to all the financial resources he needs, while 62.6% did not. Only 3.2% of respondents were accompanied by their husbands to the ANC clinic, making up the majority (96.8%). Seventy-four percent (74%) disapproved of the idea that an hour of waiting in a prenatal clinic is excessive. Only 7.7% of respondents, who did not have a health insurance plan, agreed that it encouraged their attendance at ANCs. Most respondents (86%) disagreed that the Health Insurance Scheme encourages their attendance at ANCs. Compared to 17.3% of respondents, a higher percentage (82.8%) of respondents were discouraged by the health workers' unfavorable attitudes. Regarding financial limitations, 83.6% of women reported that they were consistently discouraged from attending ANC clinics due to a lack of funds, while 78.9% agreed that the cost of ANC services was not high and 83% of the women had the necessary funds to

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conduct investigations like packed cell volume (PCV), urinalysis, and other tests when they attended ANC clinics. Majority of respondents (73.6%) had previously delivered. Only 6.2% of women who had negative pregnancies attended ANC, compared to 93.8% who did not.

The result of findings of this study shows that husband support, health insurance, health workers' attitude and parity have significance influence on antenatal care attendance among pregnant women in the selected primary healthcare centers.

Table 4: Knowledge on Importance of Antenatal Care Attendance (n=470)

Enabling Variables	True		False	
	Freq.	Percent	Freq.	Percent
ANC care given to pregnant women to monitor the mother and baby during pregnancy	370	100	0	0
Information received on antenatal care attendance was enough?	449	95.5	21	0.5
Understand the health education on importance of antenatal care attendance/visit given by healthcare personnel	442	93.8	28	6.2
Information given promote my antenatal attendance	455	96.8	15	3.2
The first ANC attendance/visits between the first 3 months	417	88.7	53	11.3
Minimum ANC contacts a pregnant woman should have is four	104	22.5	366	73.5
Regular antenatal care attendance empowers me to be able to	463	98.5	7	1.5
Identify danger signs of pregnancy				
Knowledge gained about danger signs in pregnancy promote my antenatal attendance	469	99.8	1	0.2
Newborn deformity can be identified early by antenatal attendance	448	95.3	22	4.7
Attending antenatal care regularly provides an opportunity to learn PMTCT	468	99.6	2	0.4
Regular antenatal attendance provides opportunity for the health practitioners to detect if I have STI, HIV	469	99.8	1	0.2
Antenatal clinic attendance gives the health practitioners opportunity to assess me, promote my health and my baby.	470	100	0	0
ANC attendance is important in preventing Malaria, anaemia and pre-eclampsia	466	99.1	4	0.9
High blood pressure can be detected if I attend clinic regularly	460	97.9	10	2.1

All respondents (100%) agreed that ANC care is care provided to pregnant women to monitor the mother and baby during pregnancy; 95.5% of the study sample of respondents (96.8%) received enough information about ANC care; and 93.8% of the pregnant women understand the health education on importance of antenatal care attendance given by healthcare personnel. These findings are shown in Table 4. The majority (96.8%) of respondents agreed that the information provided during the ANC clinic encouraged their attendance, while 88.7% said the first visit had to take place within the first three months. 73.5% of the women said it was false that a pregnant woman should have a minimum of four ANC contacts, while only 22.5% said it was true. Nearly (98.5%) all of the responders attested that regular ANC attendance gives women the ability to recognize pregnancy danger symptoms. The majority of the women (99.8%) believed that learning about pregnancy hazard indicators encouraged them to attend ANC. 95.3% of respondents said that routine antenatal care can help diagnose baby deformity early, and 99.6% said that going to antenatal care regularly gives people a chance to learn about preventing mother-to-child transmission (PMTCT). The remaining results revealed that 99.8% of respondents agreed that routine antenatal attendance gives medical professionals the chance to find out if a patient has a STI or HIV. All respondents (100%) agreed that learning about pregnancy danger signals encourages women to attend their prenatal appointments. Nearly all the respondents (99.1%) were aware of the value of attending ANC in preventing malaria, anemia, and pre-eclampsia, and 97.9% believed that excessive blood pressure might be identified if they consistently attended clinic. The findings of this present study signifies that majority of the respondents have adequate knowledge on the importance of antenatal care attendance.

Table 5: Influence of Enabling Variables on Antenatal Attendance

Enabling Variables	OR	$CI_{95\%}$	P value
Parity	6.952	0.000-0.006	0.000
Health Insurance	2.154	1.301-2.637	0.032
Health workers' attitude	2.006	0.029-0.068	0.049
Husband support	7.229	0.000-0.006	0.000
Long waiting hours	1.385	0.132-0.200	0.166

Table 5 revealed the logistic regression analysis. It showed that there was no significant influence between long waiting hours (OR= 1.385, $CI_{95\%}$ 0.132-0.200, p>0.166) on the number of ANC attendance. The null hypothesis was hereby accepted, except parity (OR= 6.952, $CI_{95\%}$ 0.000-0.006, p> 0.000), health insurance (OR=2.154, $CI_{95\%}$ 1.301-2.637, p>0.032), health workers' attitude (OR=2.006, $CI_{95\%}$ 0.029-0.068, p>0.049) and husband support (OR=7.229, $CI_{95\%}$ 0.000-0.006, p>0.000) which had significant influence on the number of ANC attendance among the pregnant women. Therefore, the null hypothesis was thereby rejected.

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DISCUSSION

As husbands, men are crucial in their partners' antenatal care attendance. The results of this study also showed that most respondents' husbands (68.9%) were able to support and encourage them during their ANC visits, but only a small percentage (33%) were able to provide financial assistance and go with their wives. This is consistent with a study done in Indonesia, [15] which found that the majority of husbands support their wives' pregnancies. Additionally, this result supported the findings of Ekholuenetale[16] who discovered a substantial relationship between pregnant women's ANC attendance and their husbands' support.

The current study's findings also supported the fact that men do not accompany their spouses to ANC clinics. In contrast, a study found that husbands of pregnant women prioritized joining their wives on ANC visits since it was customary in the neighbourhood where they resided.[15] According to survey results, 56.1% of respondents' husbands had completed secondary or higher education, which influenced how frequently they visited their wives. Pregnant women who have a partner with a higher degree may be more likely to begin antenatal care and then make the frequent visits that the current study revealed to be beneficial. The behaviour of their wives in attending ANC appears to be heavily influenced by the support of their husbands. A mother is more likely to have positive ANC visits if her spouse is supportive than she is without one. This is consistent with a study done in Nigeria that found spouse support and involvement enhances ANC attendance.[17]

Additionally, the results of this study indicate that the majority of respondents (92.3%) did not use the health insurance program, and the fact that more than half of them were self-employed may have contributed to this. The health insurance program is a crucial factor in increasing women's attendance at ANC. According to the findings of this study, just 7.7% of the respondents had health insurance, which may be due to their ignorance of the options. This result was consistent with that of a study conducted by Sakeah[18] in Bekwai, Ghana, which found that 75.2% of the women who worked for the government had health insurance. This explains why having health insurance is essential because pregnancy and childbirth are fraught with dangers and complications. Mathole[19] also found that women with health insurance have larger favorable impact on attending optimal ANC visits. Another study recorded that the determinants of attending ANC at least four times include possessing health insurance.[20] This is also consistent with findings of a study which found that health insurance has a significant impact on citizens, particularly pregnant women. [21,22] Less women without health insurance failed to register on time and missed the WHO-recommended attendance rates.

The results of this study showed that the attitude of health professionals significantly affects the number of ANCs attended. This concurs with a study from Nigeria that found that women were less satisfied with healthcare provider attitudes because of physical abuse and unpleasant behavior.[22] It also concurs with a studies conducted by Maduda &

Olasupo.[23] This result is consistent with a study which found that hostile and callous behavior on the part of healthcare professionals discouraged pregnant women from attending all of their scheduled ANC appointments and encouraged them to seek treatment from quackery and unqualified personnel instead.[24, 25] Similarly, two studies by Yaya & Akowuah[26] in Edo, Nigeria, found that the unfavorable attitude of health workers is a barrier to prenatal attendance. Furthermore, recent studies found that the attitude of healthcare professionals affected the frequency of visits.[27, 28]

The results of this study showed that respondents in the low parity group who had between 0 and 2 children sought prenatal care more frequently and earlier than those who had 3 or more children. This study supports the findings from another study, which found that low parity women have a stronger desire to visit ANC frequently and early in their pregnancies.[29, 30] Similarly, earlier research concurred with the current study that prenatal attendance was inversely correlated with increasing birth order.[31, 32] Additionally, a number of studies have suggested that parity has an impact on how often women attend prenatal care, with higher parity being associated with earlier attendance. This finding may be explained by the possibility that women with higher parity have grown more confident, choosing instead to deliver at home.[27,33]

In this present study, the respondents' knowledge about importance of antenatal care attendance were evaluated by several questions, findings indicated that women that have the knowledge and information of the meaning and importance of antenatal care were likely to use ANC more, This finding is in accordance with other previous studies.[5, 12, 30, 34] All the respondents in this current study agreed that ANC is the care given to mother and baby during pregnancy. The frequency of ANC attendance is influenced by a person's ability to pay for such services; yet, respondents' knowledge revealed that they attended ANC clinics not for its known benefits, but because they had health issues/problems requiring medical attention.

The findings however indicated that women only begin ANC when they are ill. Many respondents in the current study confirmed that regular ANC attendance equips women with the knowledge they need to recognize pregnancy danger signals, which is consistent with the findings of Nuamah.[35]

Women who use maternal health care services are typically informed about the value of regular checkups and the reasons they should go whenever they are pregnant. The fact that most of them attended ANC during their previous pregnancies suggests that they were aware of the advantages of ANC attendance. This was evident in the current study since the authors have in-depth knowledge of ANC, which is consistent with the research done by Gross.[36]

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CONCLUSION

Based on the study's findings, it was determined that parity, husband support/accompaniment, health insurance accessibility, and the health workers' unfavorable attitudes were the predictors of the factors that determined the attendance among these pregnant women. This study has demonstrated that pregnant women have a good understanding of the value of attending prenatal care. Men's health education initiatives should be started to educate them about the value of ANC attendance and the reasons they should participate as husbands. Husband participation in ANC should also be rewarded with incentives. To ensure that all Nigerian women, regardless of their ages, races, or occupations, are aware of the antenatal care services, adequate awareness campaigns should be launched. Employers should regularly provide in-service training to health professionals, especially midwives who are tasked with delivering antenatal care to pregnant women. This will help them learn more about antenatal care services. It is important to urge pregnant women's husbands to accompany them to ANC clinics and to educate them on the value of these services for both the mother and the baby's safety during birth.

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