

Original Article

Declining Antenatal Clinic Attendance at A Tertiary Hospital in Lagos, Nigeria: A Cross-Sectional Study Evaluating Its Determinants and Pregnant Women's Experiences

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Abstract

Objectives: This study determined the attrition rate from antenatal care (ANC) and delivery in Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos, and established the reasons for poor patient retention. **Methods:** A cross-sectional survey of 403 pregnant women receiving ANC in LUTH. An interviewer-administered questionnaire was used to collect information on their sociodemographic characteristics and experiences with ANC services in LUTH. Level of satisfaction with ANC was assessed using a numerical rating scale. In addition, data on the number of pregnant women registered for ANC and delivered yearly were retrieved from the hospital's records. Descriptive analysis was conducted on Stata version 18.0. **Results:** From 2014 to 2021, 8,620 pregnant women registered for ANC in LUTH, but only 4,072 of these delivered in the facility, making the overall attrition rate 52.8%, with the highest attrition of 71.0% in 2021. The mean age of the respondents was 31.6 ± 5.5 years, and 112(27.8%) were first timers at the clinics. ANC was considered important by 401(99.5%). The commonest self-reported reasons why the women would decide to discontinue ANC in LUTH included problems with e-payment 118(29.3%), complex registration processes 109(27.1%), long waiting time 107(26.6%), disregard/abuse by healthcare workers 74(18.4%) and missing laboratory results 71(17.6%). Problems already being encountered by some women included e-payment issues 114(28.3%), long waiting time 106(26.3%) and long registration processes 52(12.9%); and 7(1.7%) of the women expressed readiness to stop ANC at the facility. The median satisfaction score of the women for ANC received was 7(IQR:6-8), with 215(53.4%) having an above median satisfaction score. **Conclusion:** Attrition from ANC in LUTH is high due to suboptimal satisfaction with ANC services, hinged on reasons related to the e-payment process, complex registration processes and delay in receiving consultation. There is an urgent need to upscale services and adopt seamless processes to improve pregnant women's retention for ANC.

Keywords: Attrition to Care; Antenatal Care; Pregnant Women; Determinants; Lagos, Nigeria.

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INTRODUCTION

Antenatal care (ANC) is a major public health intervention aimed at ensuring safe pregnancy outcomes.¹ To ensure optimal care, the World Health Organization (WHO) earlier recommends a minimum of

four ANC visits for every pregnant woman throughout the pregnancy, with the first visit occurring in the first trimester of pregnancy.¹ Globally, 71% of women access ANC; while 95% of pregnant women utilize facility-based ANC in the developed countries, only 69% of them utilize ANC in Sub-Saharan Africa (SSA).^{2,3} Yet SSA contributes the highest to global maternal and

perinatal morbidity and mortality.⁴ Suboptimal ANC utilization is a significant threat to the realization of the Sustainable Development Goal-3 by 2030.²

Nigeria, despite making up 2% of the global population, is responsible for 10% of the estimated maternal deaths worldwide, ranking as the fourth highest contributor to maternal mortality in Sub-Saharan Africa.⁴ Alarming, only 51% of pregnant women attend four or more ANC visits during their pregnancy.⁵ This under-utilization of ANC services and the resulting poor health outcomes are not isolated issues; they often stem from a complex interplay of factors within the healthcare system in Nigeria.²

Regarding the disproportionately high burden of maternal and perinatal mortality in Nigeria, it is evident that despite the efforts of both governmental and non-governmental organizations, there is a pressing need for further evidence-based research to uncover the factors influencing the utilization of ANC services.^{4,6} Understanding the contextual factors that affect a mother's choice to attend, or not attend, ANC is crucial for healthcare practitioners and policymakers. This knowledge can provide valuable insights and opportunities for targeted policy interventions.⁷

This study determined the trend in the utilization of antenatal care and delivery services at Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos, Nigeria, between 2013 and 2023. It also assessed pregnant women's satisfaction with the quality of ANC services at the facility and identified reasons leading to attrition.

METHODS

Study design: A descriptive cross-sectional design was adopted for this study. **Study location:** The study was conducted at the antenatal clinics of Lagos University Teaching Hospital (LUTH) from 17th July to 3rd November 2023. Lagos State is situated in the south-western geopolitical zone of Nigeria. Though it is the smallest state in Nigeria, it has the highest urban population, which is 27.4 % of the national estimate according to UN-Habitat.⁸ Lagos State has three teaching hospitals, 26 general hospitals, 21 maternal and child centers, and 329 primary health centers.^{9,10} LUTH, the largest tertiary health facility in Lagos State, has an Obstetrics and Gynaecology department that runs ANC four times a week. On average, it registers approximately 25 – 40 new antenatal cases weekly. **Study population:** The study population comprised all consenting pregnant women registered for ANC in LUTH. Excluded from this study were pregnant women who were visitors to the facility or had not formally registered for ANC at the health facility.

Sample size calculation: Using Cochrane's formula and considering a dropout rate from ANC of 38.1% as found in a previous study in Ibadan, South-West, Nigeria,³ and making allowance for 10% attrition, a sample size of 403 was found to be adequate for this

study at a 95% confidence level and an alpha level of 0.05.

Sampling technique: A consecutive sampling technique was used. Eligible pregnant women were enrolled consecutively as they consented until the desired sample size was reached.

Data collection tools and techniques: Data were collected from the study participants using a structured, pre-tested, interviewer-administered questionnaire as adapted from previous studies conducted on ANC utilization in Nigeria, bearing in mind the objectives of this study.^{1,6} Data on the number of pregnant women who registered for ANC and delivered yearly from 2013 to 2023 were retrieved from the hospital's records.

The questionnaire contained open-ended and closed-ended questions with an option of free response, when such a response was not in the checklist provided. It consisted of 40 questions, divided into three sections: A to C.

Section A dealt with the socio-demographic characteristics of the respondent. It consisted of 13 questions. Section B dealt with the factors associated with the decision to continue care in the antenatal clinic in LUTH, Lagos, Nigeria. It consisted of 17 questions. Section C dealt with the levels of satisfaction with ANC received in LUTH. It consisted of 10 questions.

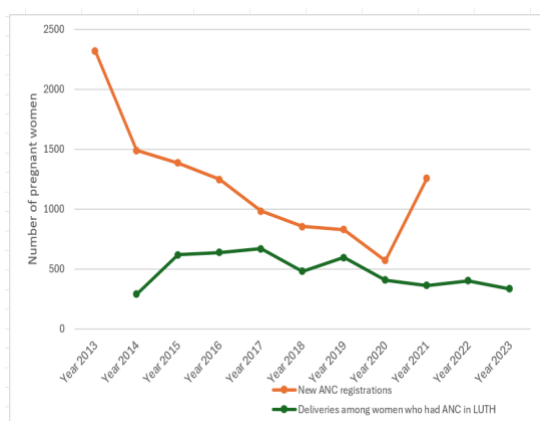
Pre-testing: A pre-test of the data collection tool was conducted on 40 women attending the antenatal clinic in Primary Health Centre, Iwaya, Lagos. This was to help detect ambiguous words, misinterpretation of questions, flow of questions, to estimate the length of time to complete the survey and determine the relevance of the questionnaire to the study objectives. The questionnaire was subsequently modified based on findings from pre-testing. Data obtained from pretesting were not included in the final data to be analysed.

Data analysis: Data collected were entered on Microsoft Excel and analysed using the Statistical Package for the Social Sciences (SPSS) version 25 software. Categorical variables were summarised as frequency and percentage in frequency tables. Age, a continuous variable, was presented as mean and standard deviation after a test of normality was done using the Kolmogorov-Smirnov test. Attrition rate was presented as a percentage. A line graph was used to present the patterns in the yearly total number of deliveries and the yearly total number of new ANC registrations over the last decade. A bar chart was used to present the yearly attrition rate in the last decade.

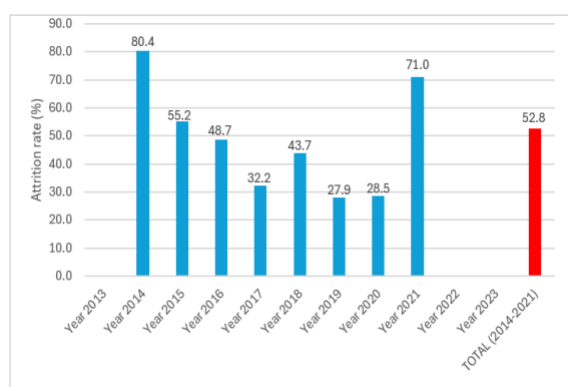
Ethical considerations: Ethical approval was obtained from the Health Research and Ethics Committee of LUTH (ADM/DSCST/HREC/APP/5842). Written informed consent was obtained from each respondent before the questionnaires were administered. Confidentiality of data collected was ensured. Data was anonymized.

RESULTS

From 2014 to 2021, a cumulative of 8,620 pregnant women registered for ANC in LUTH, but only 4,072 of these delivered in the facility, making the overall attrition rate 52.8%. *Figures 1 and 2* provide a pictorial representation of attrition from ANC in LUTH. The gap in the number of pregnant women newly registered for ANC and the number of these women delivered at the facility was widest in the early years, highest attrition rate of 80.4% in 2013. This narrowed over time, with the lowest attrition rate of 27.9% in 2019. The gap began to increase again in 2021 with an attrition rate of 71.0%.



*Healthcare workers strike in 2014, 2015, 2018 and 2021. Figure 1. Pattern of attrition of pregnant women from antenatal care in Lagos University Teaching Hospital, Lagos, Nigeria between 2013 and 2023



No data for year 2013, 2022 and 2023.

Figure 2. Yearly attrition rate from antenatal care in Lagos University Teaching Hospital, Lagos, Nigeria

Table 1 summarizes the sociodemographic and clinical profiles of the women. The mean age of the respondents was 31.6 ± 5.5 years, and 112 (27.8%) were first-time clinic attendees. ANC was considered important by 401 (99.5%). The commonest reasons

for registering for ANC in LUTH are that the women were either referred to LUTH, 74 (43.5%) or because of the multidisciplinary care provided in LUTH, 61 (35.9%), *Table 2*.

Table 1. Sociodemographic and clinical profile of the study population (n = 403)

Sociodemographic	Frequency	Percentage (%)
Parity		
0	114	28.3
1	149	37.0
2	99	24.6
3	36	8.9
4	5	1.2
Number of antenatal care visits so far		
1	112	27.8
2-3	78	19.3
4-7	170	42.2
≥8	43	10.7
Marital status		
Married	396	98.3
Single	7	1.7
Religion		
Christianity	266	66.0
Islam	137	34.0
Education		
No formal education	2	0.5
Primary	8	2.0
Secondary	126	31.2
Tertiary	243	60.3
Postgraduate	24	6.0
Monthly Salary*		
None	40	9.9
<₦30,000	19	4.7
₦30,000-₦50,000	96	23.8
>₦50,000-₦100,000	121	30.0
₦100,000 or higher	126	31.3
Undisclosed	1	0.3

*\$1 was equivalent to ₦1,500 as of xxx when this study was conducted.

Table 2. Reasons for registering for antenatal care in Lagos University Teaching Hospital, Lagos (n = 170)

Reasons	Frequency (%)
Referral	74 (43.5)
Provision of multidisciplinary care	61 (35.9)
The patient or spouse is a LUTH staff member	16 (9.4)
Good review about LUTH	10 (5.9)
IVF pregnancy	4 (2.4)

Relocation	3 (1.8)
Proximity to work	1 (0.6)
Spousal preference	1 (0.6)

The commonest self-reported reasons why the women would decide to discontinue ANC in LUTH included problems with e-payment 118 (29.3%), complex registration processes 109 (27.1%), long waiting time 107 (26.6%), disregard/abuse by healthcare workers 74 (18.4%) and missing laboratory results 71 (17.6%), *Table 3*.

Table 3. Reasons why pregnant women may discontinue antenatal care services at Lagos University Teaching Hospital, Lagos, Nigeria (n = 403)

Reasons	Frequency	Percentage
e-card/ payment issues	118	29.3
Long, complex registration process	109	27.1
Long waiting time	107	26.6
Disregard by the healthcare workers	74	18.4
Missing laboratory results	71	17.6
Cost of services	63	15.6
Poor health information/ reception	59	14.6
Poor feedback on laboratory results	53	13.2
Inability to use health insurance	32	7.9
Missing case notes	30	7.4
Far distance from home	17	4.2
Perception that the healthcare worker is incompetent	3	0.7
Exposure to other health risks	1	0.2
Health workers strike	1	0.2
A far distance between service points, e.g. clinic to laboratory facilities	1	0.2

Table 4. Problems already being faced by the antenatal care attendees at Lagos University Teaching Hospital, Lagos, Nigeria (n = 403)

Reasons	Frequency	Percentage
e-card/ payment issues	114	28.3
Long waiting time	106	26.3
Long, complex registration process	52	12.9
Cost of services	38	9.4
Poor health information/ reception	23	5.7
Missing laboratory results	22	5.5
Missing case notes	17	4.2
Disregard by the healthcare workers	15	3.7
Poor feedback on laboratory results	13	3.2

Inability to use health insurance	3	0.7
Seeing different doctors at each visit	3	0.7
Not seeing the consultant	2	0.5
Far distance from home	2	0.5
Cost of scan	1	0.2
Inpatient healthcare workers	1	0.2
Far distance between service points, e.g. clinic to laboratory facilities	1	0.2

Problems already being encountered by some women included e-payment issues 114 (28.3%), long waiting time 106 (26.3%) and long registration processes 52 (12.9%); and 7 (1.7%) of the women expressed readiness to stop ANC at the facility, *Table 4*. The median satisfaction score of the women for ANC received was 7 (IQR: 6 – 8). Only 215 (53.4%) of the women gave a satisfaction rating above the median satisfaction score for the quality of ANC services received in LUTH.

DISCUSSION

This study revealed that over half of the pregnant women who registered for ANC in LUTH do not deliver at the facility. About half of the pregnant women who receive ANC at the facility expressed above median satisfaction with care received, with only 2 per 100 pregnant women ready to discontinue ANC. Problems within the health system were identified as the commonest reasons for the high rate of attrition from ANC services, and these included problems associated with the new e-payment system, the complex registration processes, and long waiting time to receive consultation. In addition, 1 in 6 pregnant women reported disregard/abuse by the healthcare workers and missing laboratory test results as potential reasons why they may decide to discontinue ANC.

As found in this study, attrition from ANC has been a longstanding problem in LUTH, with the lowest rates between 2017 – 2020. Only about half of the pregnant women who register for ANC in LUTH end up having their deliveries at the facility. This is higher than the dropout rate of 38.1 % reported in another Nigerian study in 2016.³ The current study confirmed our earlier thoughts that attrition from ANC seems to be rising in recent times; thoughts that led to the conduct of this study to explore why pregnant women would withdraw from ANC after registering at such a top-ranking healthcare facility. LUTH is a tertiary healthcare facility involved in training resident doctors. Residency training requires a lot of hands-on training to successfully turn out good specialists. This made this study important because we need to know the root cause of existing problems like attrition from ANC.

Recently, an e-payment system was introduced in LUTH, a system that many patients considered to be stressful, as found in this study. Other reasons given by the study participants for attrition from ANC were the complexity of the registration processes and the long

waiting time to be attended to by the healthcare professionals. These are all systemic processes which need to be fixed if we are to overcome issues relating to the decline in antenatal patient load and attrition to care.

Furthermore, missing laboratory results were identified as another top reason why pregnant women would be discontinuing care from the healthcare facility. Laboratory tests result sometimes cost a lot. Having spent a lot of money to run an investigation and then told results are missing for review can be quite embarrassing to patients. This again is a systemic problem that needs to be addressed urgently to facilitate retention in ANC. In addition, the cost of services, poor health information and reception, and being attended to by different doctors at each visit were other reasons for potential attrition from ANC.

Over half of the respondents in this study have had four or more ANC visits at the time of the survey. This is an indirect reflection of their willingness to receive care at the facility. Almost all the women recruited for this study considered ANC to be important and were educated. Evidence has shown that women who have a good attitude towards maternal health are more likely to attend ANC compared with those with a poor attitude.³ In addition, a previous study in Nigeria found that the level of women's educational attainment increases linearly with their use of ANC.¹¹

Though increasing the household wealth index has been associated with an increased odds of pregnant women attending the ANC clinic,¹² this study was unable to establish any clear association between pregnant women's income and attrition from ANC. The blunted effect of income on attrition from ANC is likely because the categories of pregnant women who seek care in LUTH are often referred cases who require multidisciplinary care, or other advanced services which the primary and secondary health facilities within the state cannot provide.

Apart from bottlenecks within the health system, the attitude of the health workforce is a barrier to the retention of pregnant women in ANC. Interestingly, a sizeable number of the women reported disregard and abuse by healthcare workers. It is surprising that issues related to disrespect and abuse of patients still exist at our facility despite the propagation of the WHO principles on respectful maternal care. A previous study by our team in Lagos state, Nigeria, found that 82% of women suffer at least one form of disrespect and abuse at the public health facilities.¹³ The reason for this needs to be explored in future qualitative studies to have an in-depth understanding of the processes that could be responsible for this high prevalence of disrespect and abuse of pregnant women by the healthcare workers. This will facilitate an understanding of the underlying issues that can be promptly rectified to uphold medical ethics as is expected of our profession.

Despite the problems affecting retention of patients for ANC in LUTH, the median satisfaction score of the women regarding the quality of ANC services received was good, with over half of the women giving a rating above the median satisfaction score. This

level of satisfaction with ANC services is reassuring and suggests that once the systemic problems identified are fixed, we might be able to overcome issues related to attrition from ANC. There is a need to scale up local enabling factors to accessible ANC services within the health facility and the country at large.

This study is strengthened by the use of the health facility's record of ANC registration and deliveries across a span of a decade, as well as the use of a survey on the pregnant women to obtain relevant data to identify the reasons for the decline in ANC utilisation at the healthcare facility. A high response rate in the survey minimizes the risk of selection and attrition biases. Another potential limitation of this study is the possibility of social desirability bias, considering that the questionnaire was administered by the interviewers. In addition, using only one tertiary health facility within the state and country limits generalizability. This does not undermine the findings of this study.

This study provides evidence that attrition from ANC in LUTH occurs late in pregnancy. There is a significant disproportion between yearly numbers of antenatal registrations versus delivery, and many of the pregnant women in this study had more than four ANC visits, suggesting that ANC visits are sustained for most of the pregnancy duration. There is a need to explore why a sizeable number of pregnant women would not deliver in LUTH following ANC, as this might present other perspectives on reasons for attrition. A qualitative study will provide a better approach to answer this research question and proffer valuable insights towards implementation strategies to curb this issue. Such a qualitative study should comprise focus group discussions with pregnant and postpartum women, key informant interviews with the maternal healthcare workers and their partners and in-depth interviews with the healthcare facility managers.

CONCLUSION

Attrition from ANC in LUTH is high due to suboptimal satisfaction with ANC services, hinged on reasons related to the e-payment process, complex registration processes and delay in receiving consultation. There is an urgent need to upscale services and adopt seamless processes to improve pregnant women's retention for ANC.

Implications For Clinical Practice

There is a need to upscale services at the health facility level to minimize attrition to care, not only in LUTH, but across the country. There is a need for patient public involvement when designing and/or implementing new interventions; such interventions should be pre-tested, with monitoring and evaluation plans in place. Clinic registration processes should be simplified, activities should be time-bound, and the health workforce needs to be increased to reduce patients' waiting time.

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