

# Proximate predictors of early antenatal registration among Nigerian pregnant women

Page | 222

Adesina Oladokun, Regina E. Oladokun<sup>1</sup>, Imran Morhason-Bello, Adenike F. Bello, Babatunde Adedokun<sup>2</sup>

Departments of Obstetrics and Gynaecology, <sup>1</sup>Paediatrics and <sup>2</sup>Epidemiology, Medical Statistics and Environmental Health, University College Hospital, PMB 5116, Ibadan, Nigeria

**Correspondence to:** Dr. Adesina Oladokun, Department of Obstetrics and Gynaecology, University College Hospital, PMB 5116, Ibadan, Nigeria. E-mail: sinaoladokun@yahoo.com

## Abstract

**Background:** Provision of antenatal care (ANC) is included in the pillars of maternal health care promoted as effective answers to maternal mortality. Early antenatal registration has been linked with optimal utilization and appreciable reduction of perinatal morbidity and mortality. This study aimed to determine the profile and possible predictors of pregnant women who presented early for antenatal registration.

**Methods:** A cross-sectional study was conducted among 796 women presented for antenatal registration at a tertiary hospital. Information was obtained by a self-administered open- and closed-ended questionnaire and analyzed with Statistical Package of Social Science (SPSS) 12.0 software.

**Results:** The mean gestational age at booking was 20 weeks. Univariate analysis showed that first trimester booking was significantly with more educated women, professionals, women of lower parity and those who have had previous stillbirths ( $P < 0.05$ ). Low parity (OR 1.76, 95% CI 2.79–1.11) and previous stillbirth (OR 2.97, 95% CI 1.61–5.51) were significant predictors of early booking on multivariate analysis.

**Conclusion:** Long-term advocacy and investment in female education will contribute significantly to primary prevention of late or non-attendance of ANC. Pre-conception clinics and community awareness campaigns would be necessary tools to reach these women and encourage them to register early when pregnant.

**Keywords:** Antenatal booking, early registration, pregnancy

## Résumé

**Arrière-plan:** Soins prestation de prénatals (ANC) sont inclus dans les piliers de soins de santé maternelle promu comme des réponses efficaces à la mortalité maternelle. Enregistrement prénatals début a été lié avec l'utilisation optimale et une réduction sensible de la mortalité et de morbidité périnatale. Cette étude visait à déterminer les indicateurs de profil et possible des femmes enceintes qui a présenté au début pour enregistrement prénatals.

**Méthodes:** une étude transversale a été réalisée chez les 796 femmes présentées à l'immatriculation prénatals dans un hôpital tertiaire. Information a été obtenue par un questionnaire auto-administré ouvertes et fermées et analysée avec logiciel statistique package de sciences sociales (SPSS) 12.0.

**Résultats:** L'âge gestationnel moyenne à la réservation a été de 20 semaines. Unidimensionnelle analyse a montré que premier quadrimestre réservation était sensiblement plus éduquée femmes, professionnels, femmes de parité inférieure et ceux qui ont eu des précédents mort-nés ( $P < 0,05$ ). Faible parité (1,76 OR, 95% CI 2.79–1.11) et mortinaissance précédente (2.97 OR, 1.61–5.51 CI de 95%) étaient des indicateurs importants de réservation anticipée sur analyse multivariée.

**Conclusion:** Sensibilisation à long terme et les investissements dans l'éducation des filles contribuera grandement à la prévention primaire de retard ou de non-comparution de ANC. Pre-conception cliniques et des campagnes de sensibilisation communautaire serait les outils nécessaires pour atteindre ces femmes et de les encourager à Inscrivez-vous tôt lorsque enceinte.

**Mots-clés:** Prénatales de réservation, l'enregistrement de début, grossesse

## Introduction

Provision of antenatal care (ANC) is included in the three pillars of maternal health care promoted as effective answers to maternal mortality.<sup>[1]</sup> This service usually provides a range of opportunities for delivering health information and interventions that can significantly enhance health of the would-be mothers. In addition, it also provides entry point to a wide range of programs/interventions such as prevention, control, and treatment of conditions like malaria, HIV/AIDS and tuberculosis (TB) that could potentially cause adverse events to either the woman or her baby.<sup>[2]</sup>

Early antenatal registration is associated with many benefits and these include accurate dating, early detection of medical disorders that could threaten the pregnancy and its outcome, objective assessment of maternal baselines such as weight, blood pressure and urinalysis that may provide a picture of the pre-pregnancy condition of the woman.<sup>[2]</sup> Furthermore, early antenatal registration has been linked with optimal utilization and appreciable reduction of perinatal morbidity and mortality, irrespective of the place of care.<sup>[2]</sup>

Various ANC models that differed in contents and number of visitations have a unanimous starting point of early first antenatal visit and it is usually recommended to be within the first trimester.<sup>[2]</sup> In spite of this, there are many pregnant women in developing countries who still register late beyond the stipulated beneficial time. Studies from different regions within Nigeria have consistently shown that pregnant women mostly register above 20 weeks gestation.<sup>[3-7]</sup> Various reasons for this poor health-seeking attitude have also been extensively explored. These include longer distance, age, poverty, living in rural communities, poor education and a host of others.

Judging by the volume of research on late antenatal registration in developing countries including Nigeria,<sup>[3-6]</sup> it is tempting to conclude that offering solution to these identified reasons may encourage early registration for ANC. However, it is probable that the group of women who would prefer early antenatal registration may not necessarily have paradoxical characteristics. Therefore, this study aims to determine the profile and possible predictors of pregnant women who presented for early antenatal registration. The outcome may provide a guide to possible strategic modifications of programs and intervention that will promote this positive health-seeking behavior within the Nigerian community.

## Materials and Methods

This was a cross-sectional study conducted among women who presented for antenatal registration at a tertiary health institution located in Nigeria. Three antenatal clinics are held per week and about 80–120 pregnant women attend each session. The policy guideline of the unit is to encourage the pregnant women to register for ANC after the second missed period and not later than 13<sup>th</sup> week gestational age (first trimester). Every week, pregnant women report at 8.00 a.m. on Wednesday for first-time registration (booking). The process involves group health education session, individual voluntary counseling and testing for HIV with opt-out approach, conducting routine investigations (hematocrit estimation, urinalysis, venereal disease research laboratory test for syphilis screening, blood group and hemoglobin electrophoresis) and weight estimation. Thereafter, each of these women is seen by doctors, where information on other medical and obstetric condition is obtained, followed by physical examination of all the systems.

During each booking clinic, consecutive pregnant women were recruited for the study after written consent was obtained, till the desired sample size was reached. The tool used for the study was a self-administered open- and closed-ended questionnaire. The information obtained included social and demographic data and past obstetric history. Data from July 2006 till December 2007 were obtained.

The statistical analysis was performed using Statistical Package of Social Science (SPSS) 12.0 software. For ease of analysis, the gestational age at registration was analyzed in trimesters. The first trimester was defined as the beginning of the pregnancy till 13 weeks gestational age, the second trimester was from 14 to 27 weeks, and the third trimester was from 28 weeks till term. Bivariate analysis was applied to explore the effect of social and demographic data on the independent, using the chi-square test. Thereafter, multivariate analysis was performed using logistic regression model. The statistical significance was set at 95% confidence level ( $P < 0.05$ ).

## Results

Seven hundred and ninety-six newly registered women were recruited during the period. About 74% of the women were between 25 and 34 years. The mean age of the women was 30.6 years (SD 4.4) and the median parity was two. About a third constituted civil servants while other occupational

groups included traders (18.5%), semiskilled women such as fashion designers, caterers (6.9%) and professionals (15.1%). Previous abortion or stillbirth was reported in 34.5 and 6.4%, respectively. Over three quarters of the women had completed at least secondary education.

Table 1 shows bivariate relationships between trimesters at booking and women's characteristics. The mean gestational age at booking was 20 weeks (SD 6.5). Significantly earlier booking was found in more educated women ( $P = 0.027$ ), professionals ( $P = 0.007$ ), women of lower parity ( $P = 0.005$ ) and in those with history of stillbirth ( $P = 0.002$ ).

Logistic regression analysis using the backward stepwise procedure revealed that low parity (OR = 1.76, 95% CI = 2.79–1.11) and previous stillbirth (OR = 2.97, 95% CI = 1.61–5.51) were significant predictors [Table 2].

**Table 1: Relationship between time at booking and women's characteristics**

Variables	Trimesters (% within categories of characteristics)			P value
	First	Second	Third	
Age (years)				
<25	21.4	62.5	16.1	
25–29	17.8	65.3	17.0	
30–34	19.8	63.7	16.5	0.846
35+	15.0	64.7	20.3	
Education				
Primary	12.5	56.3	31.3	
Secondary	13.9	66.4	19.7	0.027*
NCE, polytechnic	17.1	64.6	18.2	
University	22.1	64.4	13.6	
Occupation				
Traders	13.6	61.2	25.2	
Professionals	22.5	68.3	9.2	
Civil servants	17.1	67.1	15.9	0.007*
Semiskilled	20.0	50.9	29.1	
Others	20.4	64.4	15.3	
Parity				
None or one	22.1	64.2	13.7	
Two	17.0	64.9	18.1	0.005*
Three and above	15.1	63.8	21.1	
Previous hypertension				
Yes	20.0	56.7	23.3	0.613
No	18.3	64.6	17.1	
HIV status				
Positive	13.2	57.9	28.9	0.221
Negative	19.0	65.2	15.8	
Not done	17.1	62.7	20.3	
Previous abortion				
Yes	18.9	62.9	18.2	0.828
No	18.0	65.1	16.9	
Previous stillbirth				
Yes	35.3	43.1	21.6	0.002*
No	17.2	65.8	17.0	

\*Statistical significance at  $P < 0.05$

## Discussion

A key objective of maternal health care is for women to present for ANC early, in order to allow enough time for essential diagnoses and treatment regimens. A global regional analysis by the World Health Organization revealed that most women booked in the first trimester, except in sub-Saharan Africa.<sup>[2]</sup> Our study corroborated this, with most of the first visits being in the second trimester and a substantial number being in the third trimester. The association between women's education and early booking has been documented.<sup>[8]</sup> Apart from educated women being more likely to be able to recognize the benefits of ANC, they are also more likely to be empowered to make a decision to register for ANC.

It is apparent that the higher the parity, the more likely the parturient feels experienced enough in childbearing not to require early booking. On the contrary, these women are actually more likely to have high-risk pregnancies with the attending problems of grandmultigravidity and complications of advancing maternal age, and so, they need to be educated. Medical complications in previous pregnancies were not associated with early booking. It is possible that these women were not aware of the recurrent nature of these disorders. Previous stillbirth was associated with early booking, so it seems that they did understand the correlation between complications in subsequent pregnancy and previous stillbirths.

One can extrapolate that women who start attending clinic earlier are more likely to have more visits, and clients who have had regular ANC are more likely to have a skilled attendant at delivery—an important aspect of safe motherhood.<sup>[1]</sup> It is therefore desirable that early attendance for ANC be encouraged.

In conclusion, long-term advocacy and investment in female education will contribute greatly to primary prevention of late or non-attendance of ANC, thereby reducing maternal and perinatal morbidity and mortality. Health education during ANC can only enlighten women who are already attending clinic. Pre-conception clinics and community awareness campaigns would be necessary tools to

**Table 2: Logistic regression of early booking (first trimester vs. others) on women's characteristics**

Variable	Odds ratio	95% CI	OR	P value
Previous stillbirth	2.97	1.61–5.51	0.001*	
Parity				
≤1 vs. 3 and above	1.76	1.11–2.79	0.016*	
2 vs. 3 and above	1.19	0.73–1.93	0.490	

\*Statistical significance at  $P < 0.05$

reach these women and encourage them to register early.

## References

1. Maternal Mortality. International Women's Health Program [monograph on the internet]; 2009. Available from: [http://iwhp.sogc.org/index.php?page=maternal-mortalityandhl=en\\_US](http://iwhp.sogc.org/index.php?page=maternal-mortalityandhl=en_US). [cited 2010 Mar 27].
2. Abou-Zahr CL, Wardlaw T. Antenatal care in developing countries. Promises, achievements and missed opportunities: An analysis of trends, levels and differentials, 1990-2001. Geneva. World Health Organisation; 2003.
3. Gharoro EP, Igbafe AA. Antenatal care: Some characteristics of the booking visit in a major teaching hospital in the developing world. *Med Sci Monit* 2000;6:519-22.
4. Adeyemi AB, Makinde ON, Ajenifuja KO, Soyinka AS, Ayinde AK, Ola BA, *et al.* Determinants of antenatal booking time in a South-Western Nigeria setting. *West Afr J Med* 2007;26:293-7.
5. Okunlola MA, Ayinde OA, Owonikoko KM, Omigbodun AO. Factors influencing gestational age at antenatal booking at the University College Hospital, Ibadan, Nigeria. *J Obstet Gynaecol* 2006;26:195-7.
6. Nwagha UI, Ugwu OV, Nwagha TU, Anyaehie US. The influence of parity on the gestational age at booking among pregnant women in Enugu, South East Nigeria. *Niger J Physiol Sci* 2008;23:67-70.
7. Maternal Health and Obstetric Fistulae. In: National Population Commission (NPC) [Nigeria] and ICF Macro. Nigeria Demographic and Health Survey 2008, Abuja, Nigeria: National Population Commission and ICF Macro; 2009. p. 125-41.
8. Simkhada B, Teijlingen ER, Porter M, Simkhada P. Factors affecting the utilization of antenatal care in developing countries: Systematic review of the literature. *J Adv Nurs* 2008;61:244-60.

**Source of Support:** Nil, **Conflict of Interest:** None declared.

## New features on the journal's website

### Optimized content for mobile and hand-held devices

HTML pages have been optimized of mobile and other hand-held devices (such as iPad, Kindle, iPod) for faster browsing speed.

Click on **[Mobile Full text]** from Table of Contents page.

This is simple HTML version for faster download on mobiles (if viewed on desktop, it will be automatically redirected to full HTML version)

### E-Pub for hand-held devices

EPUB is an open e-book standard recommended by The International Digital Publishing Forum which is designed for reflowable content i.e. the text display can be optimized for a particular display device.


Click on **[EPub]** from Table of Contents page.

There are various e-Pub readers such as for Windows: Digital Editions, OS X: Calibre/Bookworm, iPhone/iPod Touch/iPad: Stanza, and Linux: Calibre/Bookworm.

### E-Book for desktop

One can also see the entire issue as printed here in a 'flip book' version on desktops.

Links are available from Current Issue as well as Archives pages.

Click on  View as eBook