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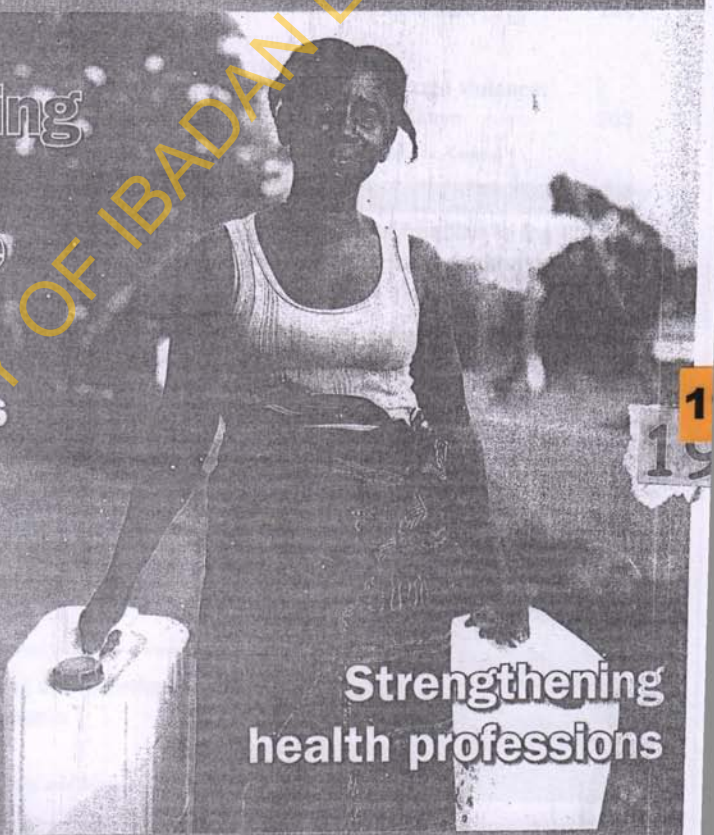

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# Factors influencing initiation of antenatal care in Ibadan, Nigeria

*By O. Abimbola Oluwatosin, Joel O. Aluko and Adenike Onibokun*


## Abstract

***Objective*: Late antenatal care (ANC) registration and irregular attendance have been implicated as factors preventing women from receiving the full benefits of effective ANC. Therefore, this study seeks to elicit the factors that impact pregnant women's timing of registration for ANC in a mission hospital, in Ibadan, Nigeria. *Method*: A cross-sectional study of 160 women attending the booking clinic over a 4-week period. A structured questionnaire was utilized to collect data on sociodemographic characteristics, index pregnancy, previous pregnancy and past obstetrical history. *Result*: Only 14 women (9.4%) booked at first trimester while 93 (62.4%) and 42 (28.2%) booked at second and third trimesters respectively. For previous and current pregnancies, the husband's instruction was the leading influence for booking, at 71 (45.8%) and 89 (57.4%) respectively. Knowledge of ANC timing, experience of loss of child and miscarriage were significant predictors of gestational age at booking. *Conclusion*: This study suggests the need for education at a pre-conceptual stage of the benefits of early initiation of ANC for women.**


The primary objectives in midwifery are to ensure that mothers are healthy throughout the pregnancy and postnatally, and deliver a live, healthy baby. Antenatal care (ANC) is one of the pillars of the safe motherhood programme (Adekanle and Isawumi, 2008), having been found to improve maternal and infant health and therefore helping to reduce both maternal and infant morbidity and mortality (Low et al, 2005; Adeoye et al, 2005; Ye et al, 2010). However, Lumbiganon et al (2004) reported poor utilization of ANC services among women in developing countries. This has also been reported in research such as a study by Adeoye et al (2005) who acknowledged a similar slow uptake among study participants in Ebonyi state in Nigeria. This may be a contributory factor in why developing countries account for 99% of the 585 000 maternal deaths that occur globally every year (Jimoh, 2003; Mesganaw et al, 2005). Most maternal morbidity and mortality occurrs because of complications during pregnancy and delivery, and many complications can be detected if women initiate ANC early in pregnancy (Okunlola et al, 2006).

Early initiation of care is considered to be important for the early detection and management of adverse pregnancy-related outcomes. The World Health Organization (WHO (2002) ANC model for developing countries recommended that pregnant women initiate care in the first trimester in order to afford patients the opportunity of early diagnosis of abnormalities and appropriate interventions. This will also reduce the confusion that can sometimes occur about the expected date of delivery, especially among less educated women who may not recall the date of the last menstrual period before pregnancy if too much time has elapsed (Adewunmi et al, 2009).

In sub-Saharan Africa, particularly Nigeria, late initiation of ANC and irregular attendance have been reported as common (Nylander, 2005; Okunlola et al, 2006; Aluko and Oluwatosin, 2008; Adekanle and Isawumi, 2008; Adewunmi et al, 2009). For instance, less than 10% of pregnant women in a study in a mission hospital in Ibadan (different to the current study) booked at first trimester (Aluko and Oluwatosin, 2008). In a study in Lagos, only 6% of the participants booked at first trimester, while 62% booked between 14–26 weeks and 32% booked at third trimester (Adewunmi et al, 2009). When ANC is initiated early, the pregnant woman will be able to access services that have the greatest impact on her own health and that of the baby. Such services include institution of available malaria preventive measures, correction of anaemia, elimination of hookworm, screening and treatment of syphilis and management of any medical complications (Okunlola et al, 2006). Research has shown that the incidence of anaemia in pregnancy was found to be very low among the women who initiated ANC at the first trimester (Adekanle and Isawumi, 2008; Aluko and Oluwatosin, 2008). This is because of the benefit of early use of folate and folic acid that they received. In light of the importance of early initiation of ANC in achieving safe motherhood and a healthy baby, this study seeks to uncover the factors that influence the timing of ANC booking in a mission hospital in a suburban area of Ibadan—previous studies have been undertaken in teaching hospitals in the region. In addition, the study hopes to establish if there are differences in the factors influencing the initiation of ANC in women at the mission hospital; this knowledge will enable targeted interventions and specific educational programmes for this group.

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**Table 1. Selected demographic characteristics of participants**

| Characteristic | | Frequency | Percentage |
|---|---|---|---|
| Age ($n=150$) | 16–19 years | 5 | 3.3 |
| | 20–24 years | 29 | 19.3 |
| | 25–28 years | 43 | 28.7 |
| | 29–34 years | 52 | 34.7 |
| | 35–44 years | 21 | 14.0 |
| Marital status ($n=153$) | Single | 20 | 13.1 |
| | Married | 128 | 83.7 |
| | Separated | 2 | 1.3 |
| | Divorced | 1 | 0.7 |
| | Widowed | 2 | 1.3 |
| Educational status ($n=151$) | Not literate | 4 | 2.6 |
| | Primary | 26 | 17.2 |
| | JSS 1–3 | 9 | 6.0 |
| | SSS 1–3 | 66 | 43.7 |
| | Tertiary | 46 | 30.5 |
| Occupation ($n=154$) | Unemployed | 5 | 3.2 |
| | Student | 16 | 10.4 |
| | Housewife | 4 | 2.6 |
| | Self-employed | 106 | 68.8 |
| | Civil servant | 12 | 7.8 |
| | Others | 11 | 7.1 |
| Religion ($n=152$) | Christianity | 69 | 45.4 |
| | Islam | 83 | 54.6 |

JSS = Junior secondary school; SSS = Senior secondary school

## Methodology

This study used a descriptive cross-sectional design involving a questionnaire to elicit information from consenting pregnant women that attended the booking clinic of Catholic Hospital Eleta in Ibadan. The hospital is a fee-paying secondary health facility located in the suburban region of the city. It is adequately equipped with facilities for managing obstetrics and gynaecological cases. It provides services to women in Ibadan and its environs. The study proposal was submitted to the hospital authority for ethical review and the study commenced after obtaining written approval.

A convenient sampling method was used to recruit 160 consenting pregnant women attending the booking clinics over a 4-week period. At each booking clinic the nurse in charge introduced the research team to the women, after which one of the researchers gave detailed information about the study as well as the ethical rights of the participants. Those that gave consent to participate in the study were given the questionnaire after completing their routines. The participants that were not literate were assisted to complete the questionnare either by one of the researchers or one of two trained research assistants. This served as a limitation for this study as different individuals attended to this group. Although the research assistants were trained, there may have been some variations in the responses especially as some participants that were literate responded to the questions by themselves.

The questionnaire used to elicit information consisted of both structured and open-ended questions, with four sections:

- Sociodemographic information
- Obstetric/gynaecologic history
- Pattern of present and past antenatal booking
- Awareness of the new WHO model of ANC.

The first three sections provided data for this report. Using the Statistical Package for the Social Sciences (SPSS) for Windows, version 15, descriptive analysis as well as cross-tabulation of variables against gestational age at booking were performed to determine association. Chi square was done to test associations and regression analysis was performed to identify significant predictors of gestational age at booking. For all statistical tests a $P$ value $<0.05$ was considered significant.

## Results

Only 155 (96.9%) of the 160 women recruited for the study had completed the questionnaires adequately for data analysis. Only 150 indicated their age; the mean (standard deviation (SD) 5.1) age of respondents was 28.4 years. Only 5 (3.2%) participants were teenagers. Of the participants, 66 (43.7%) had senior secondary education, 128 (83.7%) were married, and 106 (68.45%) were self-employed. *Table 1* shows details of sociodemographic data of participants. Of the participants, 45 (29%) were primigravida while 23 (14.8%) were grand multigravida; *Table 2* shows details of participants' characteristics of obstetric history.

Results also show that 149 (96.1%) women indicated gestational age at booking. This ranged from 4 and 32 weeks with the mean gestational age at booking being 21.5 weeks (SD 6.1). Only 14 (9.4%) booked at first trimester while 93 (62.4%) and 42 (28.2%) booked at second and third trimesters respectively. In their previous pregnancies, 26 women (29.2%), 9 (17.6%), 2 women (6.5%) and one woman booked in the first trimester of the first, second, third and fourth pregnancies respectively, and for the fifth and sixth pregnancies nobody booked at first trimester. *Table 3* shows details of gestational age at booking in current and previous pregnancies.

### *Factors influencing gestational age at booking*

The different sociodemographic characteristics were cross-tabulated with gestational age at booking. The results below were based on the reconciliation of the two variables.

### Maternal age groups

Participants were grouped into five age groups. The 5 teenagers (3.2%) participating in this study booked at the second trimester. In the second age group, 20–24 years, 2, 20 and 6 women booked at first, second and third trimester respectively. Among the 31 participants in the 25–28 years age group, 6, 12, 13 women booked at first, second and third trimester. The modal group is the 29–34 years and 4, 33, 14 women booked at first, second and third trimesters respectively. There were only 20 women in the 35–44 years age group, and only one woman booked in the first semester while 12 and

7 women booked at second and third trimesters respectively (*Figure 1*).

## Marital status

When marital status was cross-matched with gestational age at booking, the results showed that only 106 of the married women, 17 of the single women and 2 each in the widowed and separated groups indicated their gestational age at booking. Of the married women, 13, 76 and 37 women booked at first, second and third trimester respectively. Also 1, 14 and 2 of the single women booked at first second and third trimester respectively while 2 participants each in the widowed and separated groups and 1 woman from each group booked at second and third trimesters (*Figure 2*).

## Educational status

Of the 90 women who booked in the second trimester, 3 were not literate, 13 had primary school education, 6 had junior secondary school education, 40 had senior secondary school education while 28 women had tertiary education. Out of the 42 women who booked at third trimester, 14 women had senior secondary school and 40 women had tertiary education while 2 and 11 women had junior secondary school education and primary school education respectively; only one was non-literate (*Figure 3*).

## Occupation

Most of the participants were self-employed and out of the 101 in this group, only 8 women (5.2%) booked in the first trimester. Twelve were civil servants, and of these 2, 7, 3 women booked at first, second and third trimesters respectively. Sixteen were students and of these 1, 10 and 5 women booked at first, second and third trimesters respectively. Only 5 women were unemployed and 4 of these booked at second trimester, while the other one participant in this group booked at third trimester (*Figure 4*).

## Religion

A total of 66 participants were Christian and of these 8, 42 and 16 women booked at first, second and third trimesters respectively, while among the 80 participants that were Muslim, 5, 49 and 26 booked at first, second and third trimesters respectively.

## Obstetrical procedures in previous pregnancies

Among those that had experienced obstetrical operations or procedure in previous pregnancies, only one woman booked at the first trimester as she had previously experienced an induction of labour. Three participants each that had elective and emergency caesarean sections booked at the second trimester and one participant that had emergency caesarean section during a previous pregnancy still booked at the third trimester.

## Other identified factors

In response to the question 'Why have you come to book today?', various reasons were given by participants for booking at that time and these reasons were coded (*Table 4*). The reason that recurred most was that the participants considered it a 'necessity' and 53 (34.2%) of the participants gave this reason. Of these, 4, 32, and 17 booked at first, second and third trimester respectively. Similarly various reasons were given for not booking at the first trimester, with 64 women (41.3%) indicating that they did not book 'because there was nothing wrong with them'. *Table 5* shows the details of reasons for not booking at the first trimester.

However, in response to a structured question requesting participants to tick from stated options what influenced their booking, the husband's instruction was the leading influence

**Table 2. Obstetrical history of participants**

| Characteristic | | Frequency | Percentage |
|---|---|---|---|
| Gravida | Primigravida | 45 | 29 |
| | Gravida 2 | 39 | 25.2 |
| | Gravida 3 | 25 | 16.1 |
| | Gravida 4 | 18 | 11.6 |
| | Gravida 5–9 | 23 | 14.8 |
| | Not indicated | 5 | 3.2 |
| Miscarriage | No | 113 | 72.9 |
| | Yes | 37 | 23.9 |
| | Not indicated | 5 | 3.2 |
| Experienced death of child | No | 105 | 67.8 |
| | Yes | 30 | 19.4 |
| | Not indicated | 20 | 12.9 |
| Previous obstetric operations/ procedures | Induction of labour | 15 | 9.7 |
| | Augmentation of labour | 9 | 5.8 |
| | Forceps delivery | - | - |
| | Vacuum extraction | 2 | 1.3 |
| | Elective (planned) caesarean section | 4 | 2.6 |
| | Emergency (unplanned) caesarean section | 4 | 2.6 |
| | Shirodkar stitch for habitual abortions | - | - |
| | Treatment of hypertension in pregnancy | 1 | 0.6 |
| | Amniocentesis | 5 | 3.2 |

**Table 3. Gestational age at booking in current and previous pregnancies**

| Pregnancy | Total | 4–12 weeks | 13–24 weeks | 24–32 weeks |
|---|---|---|---|---|
| Current pregnancy | 149 | 14 (9.4%) | 93 (62.4%) | 42 (28.2%) |
| First | 89 | 26 (29.2%) | 57 (64%) | 6 (6.7%) |
| Second | 51 | 9 (17.6%) | 40 (78.4%) | 2 (3.9%) |
| Third | 31 | 2 (6.5%) | 27 (87.1%) | 2 (6.5%) |
| Fourth | 15 | 1 (7.1%) | 13 (86.6%) | 1 (6.7%) |
| Fifth | 6 | - | 5 (83.3%) | 1 (16.7%) |
| Sixth | 3 | - | 2 (66.7%) | 1 (33.3%) |

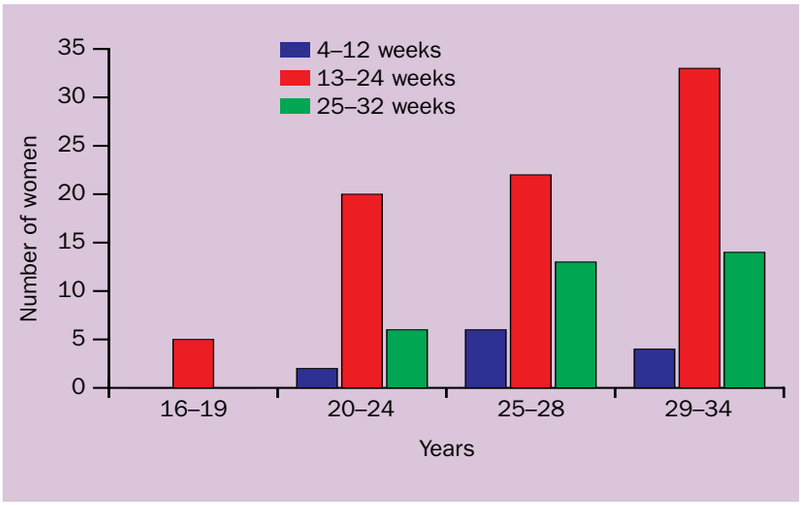


*Figure 1. Gestational age at booking/maternal age groups.*

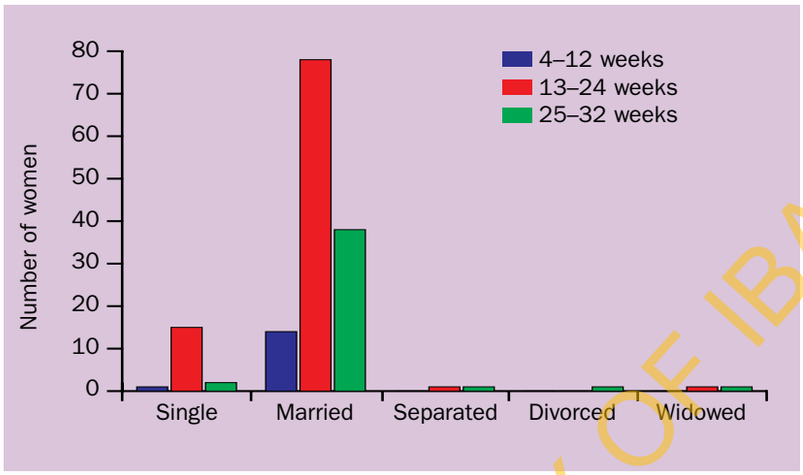


*Figure 2. Gestational age at booking/marital status.*

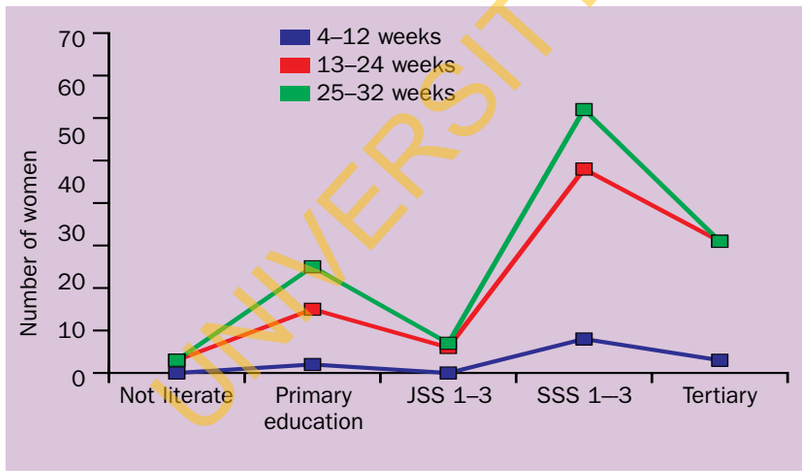


*Figure 3. Gestational age at booking across educational status of the women.*

for booking at 71 (45.8%) in previous pregnancies, and 89 (57.4%) in the current pregnancy. With previous pregnancies, 9 (5.8%) women booked in following their mother's instruction, and 8 (5.2%) at the mother-in-law's instruction. In the current pregnancy, 13 (8.4%) booked at their mother's instruction, and 15 (9.7%) at their mother-in-law's instruction 8 (5.2%). In addition, other clients who use the facility motivated the participants—8 (5.2%) in previous pregnancy and 9 (5.8%) in current pregnancy. Four (2.6%) participants in a previous pregnancy, and only one (0.6%) with a current pregnancy, claimed that nurses influenced the timing for booking.

Of the 62 Christian respondents, only 32 (56.5%) had correct knowledge of ANC timing, while of the 76 Muslims, 25 (32.9%) had correct knowledge ($X^2$ 7.654, degree of freedom (DF) 1, $P = 0.005$). Other sociodemographic parameters such as marital status, educational status, and occupation were not found to be significant when crosstabulated with knowledge of ANC timing. Regression analysis indicated that three variables were significant predictors of gestational age at booking ($F = 9.765$, $P = 0.000$):

- Knowledge of ANC timing
- Experience of loss of child
- Miscarriage.

## Discussion

The mean gestational age at booking of 21.5 weeks (SD = 6.1) in this study is lower than the 23.5 weeks (SD = 6.0) reported in Sokoto (Northern Nigeria) in 1998. Similarly in Lagos in 2009, mean gestational age at booking was 23.5 weeks (SD = 6.9), and 29.7 weeks in Benin City, in 2000 (Ekele et al, 1998; Okunlola et al, 2006; Adewunmi et al, 2009). However, the current results are comparable to a 2006 Ibadan report which found a mean gestational age of 21.8 weeks (SD = 7.0) at booking (Okunlola et al, 2006). However, in Oshogbo, Nigeria, Adekanle and Isawumi (2008) reported a lower mean gestational age at booking of 20.3 weeks (SD = 6.2).

The pattern of booking that emerged in this study is similar to that of other studies in Nigeria (Ekele and Audu, 1998; Okunlola et al, 2006; Aluko and Oluwatosin, 2008; Adewunmi et al, 2009) in which the majority of the participants booked at the second trimester, followed by booking at third trimester; very few women in these studies booked at the first trimester. This trend was also reported in Uganda by Kiwuwa and Mufubenga (2008). These report of mean gestational age at initiation of ANC and the pattern of booking may explain the high infant and maternal morbidity and mortality rates in developing countries, as booking later than the first trimester of pregnancy means that women do not benefit from early screeening for complications and monitoring foetal and maternal health (Low et al, 2005). In a study in Japan (Ye et al, 2010), in which the majority of the participants also initiated ANC at second trimester, the pattern differed from the findings of the current study with the first trimester also having high bookings, and only a few participants waiting until the third trimester to book. Similarly, in New Zealand (Low et al, 2005) only 26.6% initiated their ANC 'late' at 15 weeks or later. In a rural population in India (Metgud et al 2009), 10 women (7.69%) did not register at all, 39 (30%) booked in the first trimester, 7 (5.3%) registered in the third trimester and the majority, 74 (56.93%) booked in the second trimester.

### *Maternal age, education and religion*

There were very few teenagers among the participants. These teenagers initiated ANC late perhaps due to prevailing cul-

tural views about teenage pregnancy as unacceptable to many families. This attitude prevents adequate psychosocial care for pregnant teenagers, which may in turn have implications for compliance with ANC services. This finding is similar to that of a previous study in a similar setting (Aluko and Oluwatosin, 2008). A study among adolescents in Lesotho reported that the majority initiated ANC in the second trimester, while the others initited ANC in third trimester; none of the adolescents initiated ANC in first trimester (Phafoli et al, 2007). The authors further reported that the late initiation of ANC was due to lack of knowledge regarding importance of early initiation, denial of the pregnancy by the boyfriend, the fact that sex outside of marriage in Lesotho is still taboo and structural variables related to service provision (Phafoli et al, 2007).

As expected, the majority of the participants in this study were married, an observation made in many other studies (Adekanle and Isawumi, 2008; Aluko and Oluwatosin, 2008; Kiwuwa and Mufubenga, 2008; Ye et al, 2010).

Considering that the hospital was situated in a high density area of the city where most residents were assumed to be illiterate or with primary education, it was surprising that only a few of the participants were not literate. As indicated in *Table 1*, 46 (30.5%) had tertiary education and another 66 (43.7%) had senior secondary school education. However, it is possible that women from other areas of town came to access services at the mission hospital due to its good reputation. Nevertheless, education has been identified as one of the most important predictors of ANC utilization, with previous studies being similar as all the participants had one form of education and the majority had tertiary education, (Aluko and Oluwatosin, 2008; Adewunmi et al, 2009; Ye et al, 2010). The fact that the hospital is a fee-paying hospital may also explain the level of education of the participants, as education had been associated with better income. It may therefore be necessary to replicate this study among the wider population to identify if the findings of this study will be different among non-literate population.

The findings of this study indicated a significant association between religion and correct knowledge of ANC timing. More Christians had correct knowledge of timing of ANC than Muslims. Futher study should explore other issues of initiation of ANC and religion.

### *Parity and previous experience*

The findings of the current study also showed that more participants reported booking at the first trimester of their first pregnancies, than did in subsequent pregnancies. This is supported by a previous finding that identified parity as a significant determinant of gestational age at booking (Okunlola et al, 2006). The observation may be due to the fact that inexperienced primigavidas were anxious to confirm that they were truly pregnant. It may also be that they booked because there was one complaint or the other. Future studies may have to explore the factors that influence initiation of ANC among primigravidas.

It could be anticipated that a previous experience of caesarean section would encourage early initiation of antenatal care in subsequent pregnancies. This study found the opposite, with none of the six participants who had caesarean

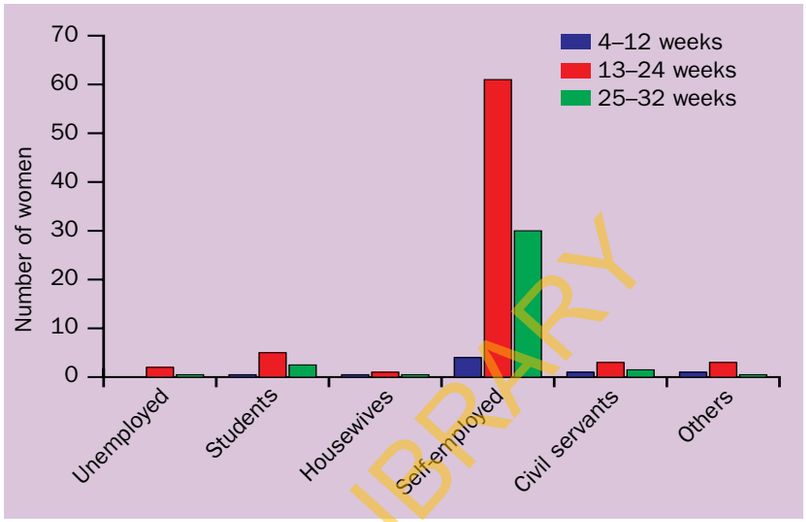


*Figure 4. Gestational age at booking/occupational status.*

**Table 4. Reasons why participants initiated antenatal care (*n*=155)**

| Reasons | *n* (%) |
|---|---|
| Motivation or instruction by parents or husband, i.e. immediate family | 8 (5.2) |
| Medical or antenatal care | 23 (14.8) |
| Delivery date, e.g. 'my delivery date is close' | 9 (5.8) |
| Desire for safe delivery | 3 (1.9) |
| Necessity of booking, e.g. 'It is necessary to book' | 53 (34.2) |
| Personal complaints, e.g. headache, fever, malaria | 15 (9.7) |
| No specific reason, e.g. 'I just want to book today' | 2 (1.3) |
| Logistical issues/preferences, e.g. 'The clinic is close to my house', 'I like the hospital' | 3 (1.9) |
| Personal decision, e.g. 'I just made up my mind to use this clinic' | 6 (3.9) |
| Acceptance of the process, e.g. 'This is the routine in this clinic' | 10 (6.5) |
| No response | 23 (14.8) |

* The responses were unstructured and coded to these 10 main reasons

**Table 5. Reasons why participants did not book at 12 weeks (*n*=155)**

| Reasons | *n* (%) |
|---|---|
| 12 weeks is too early | 14 (9.0) |
| Everybody will know that I am pregnant | 5 (3.2) |
| It is not culturally acceptable | 2 (1.3) |
| No money at that time | 8 (5.2) |
| If I come at that time I will be expected to keep on coming and that is costly | 4 (2.6) |
| There was nothing wrong with me | 64 (41.3) |
| I did not know one can come to the clinic at that time if there is no problem | 9 (5.8) |
| The baby had not started kicking | 5 (3.2) |
| I was not sure I was pregnant | 6 (3.9) |
| Others (unstated reason) | 45 (29.0) |

## Key Points

- Early initiation of care is considered to be important for the early detection and management of adverse pregnancy-related outcomes
- The study has identified knowledge of antenatal care timing, experience of loss of a child and miscarriage as significant predictors of gestational age at booking
- Midwives and community health nurses should emphasize health maintenance and health promotion in antenatal care
- Male involvement in health promotion messages can help to influence the initiation of antenatal care

sections in previous pregnancies initiating ANC care in the first trimester. Five booked during the second trimester and one booked in the third trimester. Adekanle and Isawumi (2008) also did not report a significant relationship between previous caesarean section and gestational age at booking. This has implication for midwives' and nurses' postoperative information to this category of women. The information should therefore emphasize the importance of early initiation of ANC and the implications of late initiation which could be life-threatening.

### *Reasons given for timing of booking*

The reasons advanced by participants for not initiating booking before or at 12 weeks suggests that the study participants may not have taken on board the principle of prevention and health promotion. Similarly, 83.3% of the mothers in Ye et al (2010) in Japan did not attend ANC because 'they were in sufficiently good health'. Okunlola et al (2006) also reported that 59.7% of participants indicated that 'problem-free pregnancy' is the reason for late initiation of ANC. However, in a similar setting to the current study, Aluko and Oluwatosin (2008) reported that 42% of the participants initiated ANC because they had various medical complaints. The perception of associating need for ANC with state of health has implications for community health nurses' and midwives' health education programmes at ANC clinics. Husband's instruction to attend for ANC was the leading influence in booking in previous and index pregnancies; this is unsurprising due to the patrilineal community in Nigeria. This finding further emphasizes the need for male involvement in reproductive health issues of women. Midwives and community health nurses should therefore strategize to provide information to men on the importance of early initiation of ANC.

This study has identified knowledge of ANC timing, experience of loss of child and miscarriage as significant predictors of gestational age at booking. It is therefore pertinent that community health nurses, midwives and other health care workers should use any and every opportunity to pass information to women of childbearing age about the timing of ANC, as knowledge has been found to predict gestational age at booking in this study and in Ye et al (2010). Okunlola et al (2006) identified illness in present pregnancy as well as nulliparity as determinants of gestational age at booking. Experience of child loss and miscarriage as predictors of gestational age at booking is indicative that negative experience or perceived threat enforces compliance with health-promoting behaviour although this does not extend to prior experience with obstetric procedures such as caesarean section.

## Conclusion

This study showed that early initiation of ANC is rare among this group of pregnant women. Knowledge of ANC timing, miscarriage and experience of loss of a child have been found to be significant predictors of gestational age at booking. Health professionals should therefore provide information to the public on appropriate timing for initiation of ANC as well as emphasize the relationship between late initiation of ANC, miscarriage and child loss. We advocate initiation of ANC in the first trimester in order to ensure safety of mother and baby. Early initiation of ANC will enable early detection and management of risks and complications. These significant predictors should guide midwives' pre-conceptual care plan.

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