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## FACTORS INFLUENCING DECISION TO USE ANTENATAL CARE SERVICES AMONG WOMEN IN THE UNIVERSITY OF UYO TEACHING HOSPITAL, UYO, NIGERIA

*\*Nene Francis Andem; MBBS, FWACP, Sunday Bassey Udoh, MBBS, FWACP, FMCFM*

*Department of Family Medicine, Faculty of Clinical Sciences  
College of Health Sciences, University of Uyo, Akwa Ibom State, Nigeria*

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### ABSTRACT

**Background:** Antenatal care is the care that a woman receives during pregnancy that helps to ensure healthy outcomes for the women and newborns. It is one of the pillars of safe motherhood initiative. Nigeria's maternal mortality ratio is estimated to be 814/100,000 live births with regional variations. Proper antenatal care is a viable option at reducing maternal mortality rate in Nigeria.

**Materials and methods:** This was a longitudinal study carried out at the antenatal clinic of the University of Uyo Teaching Hospital, Uyo, Akwa Ibom State. A purposive sampling method was adopted to recruit 330 eligible antenatal clinic attendees. A Semi-Structured Interviewer-administered questionnaire was used to obtain information on the background characteristics of respondents including socio-demographic characteristics and reasons for utilizing antenatal care. The data entry and analysis were done using SPSS version 17.0 with the level of significance set at  $p < 0.05$ ,

**Results:** A total of 330 pregnant women were recruited for the study. The mean age of the respondents was  $29.37 \pm 4.255$  with a range of 16-42 years. Nearly all the women were Christians (99.4%) and married (95.2%). About 80.6% lived in urban settlements and more than half of them (58.5%) and their husbands (68.5%) had tertiary level of education. Almost two-third of the respondents (64.5%) were of parity one to four. The most common reason for attending antenatal clinic was to assess foetal wellbeing (90.6%). In about one-third of respondents their husbands alone decided place to receive

antenatal care while 27.3% decided jointly as a couple.

Regression analysis of the data obtained showed two factors as being significant in decision to use antenatal care services. These were nature and extent of antenatal care services, and knowledge of benefits of use of antenatal care services.

**Conclusion:** Decision to use antenatal care (ANC) services is mainly influenced by the desires of the pregnant women to have their babies assessed for wellbeing as well as to detect any pregnancy-related disorders. This shows that women have good knowledge of the benefits of routine antenatal care services.

**Key words:** Factors influencing; antenatal care services; women; University Teaching Hospital; Uyo

### INTRODUCTION

Antenatal care is the care that a woman receives during pregnancy that helps to ensure healthy outcomes for the women and newborns.<sup>1</sup> It is one of the pillars of safe motherhood initiative.<sup>2</sup> Focused antenatal care was introduced by World Health Organization in 2001 where adequacy of utilization is assumed when the expectant mother can attend the minimum four visits as recommended.<sup>1,3</sup> The fewer antenatal visits is not likely to increase maternal or fetal risks when compared to the traditional model.<sup>4</sup> The first visit is scheduled ideally before twelve weeks but not later than sixteen weeks, the second visit at twenty-four to twenty-eight weeks, the third at thirty-two weeks and the fourth visit at thirty-six weeks.<sup>1-4</sup> Focused antenatal care employs four main intervention strategies. These include health promotion and disease prevention, early detection and treatment of complication and existing diseases, birth preparedness/complication

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**Corresponding Author: DR NENE FRANCIS ANDEM**  
*Department of Family Medicine, Faculty of Clinical Sciences  
College of Health Sciences, University of Uyo,  
Uyo, Akwa Ibom State, Nigeria.  
E-mail: nfindem@gmail.com, Phone: +2348023573421*

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readiness, and underlying principles of provision of care.<sup>1,4</sup>

The global maternal mortality ratio as at 2015 was estimated by WHO to be 21/100,000 live births, with Nigeria and India accounting for over one-third maternal deaths worldwide. Nigeria's maternal mortality ratio was estimated to be 814/100,000 live births.<sup>5</sup>

Brazil has a rate of antenatal care utilization of above 90 percent.<sup>6</sup> In Indonesia, 77.9 percent of women had up to four antenatal care visits in a study.<sup>7</sup> Many African countries, despite lower resources, have managed to maintain greater than 90 percent antenatal coverage. These include Tanzania, Cote D'Ivoire, Uganda, Ghana, and Kenya.<sup>8-12</sup>

Of the 30 million women who become pregnant each year in Africa, 6 million are in Nigeria.<sup>2</sup> However, Nigeria has antenatal care utilization of 58 percent, with 87.1 percent in the South-West zone, 87 percent in the South-East zone, 69.8 percent in the South-South zone, 65.1 percent in the North-Central zone, 65 percent in the North-East zone and 31.1 percent in the North-West zone.<sup>3,13</sup>

Studies have shown that women between the ages 20-34 years were more likely to use antenatal care services than others.<sup>14</sup> Being married more than doubled the odds of attending antenatal clinics.<sup>15</sup> Lack of requisite education by women reduces the chances of receiving antenatal care.<sup>16</sup> Other socio-demographic factors found to influence antenatal care utilization include religion, place of residence and spousal support.<sup>13,17,18</sup>

A study in North-Central Nigeria reported that 82.6 percent of the pregnant women took joint decision with their spouses to book for antenatal care.<sup>19</sup> In another study in Uganda, 40.5 percent took joint decision with their husbands, 35 percent decided on their own while 14.3 had only their partners decide for them.<sup>20</sup>

The knowledge of the benefits of antenatal care and the complications that could occur, plays a very important role in the utilization of antenatal care services.<sup>21</sup> Adequate antenatal care utilization, on the other hand, gives room for proper exposure to services rendered which include but not limited to Tetanus

Toxoid immunization, iron/folate supplementation, intermittent preventive treatment of malaria in pregnancy (IPTp), prevention of STI/HIV and the use of anthelmintics.<sup>3,22</sup>

In Akwa Ibom State, antenatal care utilization is low at 67 percent.<sup>13</sup> The reason for decision to use antenatal care services is poorly understood. It is important to note that the quality of care a woman receives during pregnancy plays a vital role in ensuring the healthiest possible outcome for mother and baby. This invariably will reduce global maternal/newborn mortality.<sup>1,4</sup> There is paucity of studies that identify these factors in the Akwa Ibom State. This study was aimed at identifying factors that influence decision to use antenatal care services among pregnant women.

## **MATERIAL AND METHODS**

This longitudinal study was carried out at the antenatal clinic of the University of Uyo Teaching Hospital, located in Uyo, the Capital of Akwa Ibom State in the South-South Geopolitical zone of Nigeria.

Using the Cochran formula for large populations, a sample size of 330 was calculated from an estimated study population of 3,874 clinic attendees taking into consideration the state antenatal care utilization rate of 67% at 95% confidence interval, taking degree of precision to be 5% and non-response rate 5%.

A purposive sampling method was adopted where all consenting eligible respondents were consecutively recruited from July 2013 to September 2013.

A Semi-Structured Interviewer-administered questionnaire sought information on the background characteristics of respondents including reasons for utilizing antenatal care. A written consent was obtained from all respondents and women that were very ill were excluded from the study. The Institutional Health and Ethical Research Committee of the University of Uyo Teaching Hospital approved the study.

The data entry and analysis were done using SPSS version 17.0 with the level of

significance set at  $p < 0.05$ .

## RESULTS

**TABLE 1: SOCIO-DEMOGRAPHIC DISTRIBUTION OF THE RESPONDENTS**

| Variable                    | Frequency<br>(N=330) | Percentage |
|-----------------------------|----------------------|------------|
| <b>Age</b>                  |                      |            |
| 15 -19                      | 5                    | 1.5        |
| 20 – 24                     | 37                   | 11.1       |
| 25 – 29                     | 134                  | 40.7       |
| 30 – 34                     | 116                  | 35.2       |
| 35 – 39                     | 33                   | 9.9        |
| 40 – 44                     | 5                    | 1.5        |
| <b>Marital Status</b>       |                      |            |
| Undisclosed                 | 2                    | 0.6        |
| Single                      | 14                   | 4.2        |
| Married                     | 314                  | 95.2       |
| <b>Residence</b>            |                      |            |
| Urban                       | 266                  | 80.6       |
| Rural                       | 64                   | 19.4       |
| <b>Religion</b>             |                      |            |
| Christian                   | 328                  | 99.4       |
| Muslim                      | 2                    | 0.6        |
| <b>Education</b>            |                      |            |
| No Education                | 2                    | 0.6        |
| Primary                     | 8                    | 2.4        |
| Junior Secondary            | 16                   | 4.8        |
| Senior Secondary            | 111                  | 33.6       |
| Tertiary                    | 193                  | 58.5       |
| <b>Occupation</b>           |                      |            |
| Farming                     | 10                   | 3.0        |
| Trading                     | 107                  | 32.4       |
| Civil Servant               | 84                   | 25.5       |
| House Wife                  | 46                   | 13.9       |
| Others                      | 83                   | 25.2       |
| <b>Husbands' Education</b>  |                      |            |
| No Response                 | 2                    | 0.6        |
| Primary                     | 4                    | 1.2        |
| Junior Secondary            | 6                    | 1.8        |
| Senior Secondary            | 90                   | 27.3       |
| Tertiary                    | 226                  | 68.5       |
| <b>Husbands' Occupation</b> |                      |            |
| Farming                     | 4                    | 1.2        |
| Trading                     | 117                  | 35.5       |
| Civil Servant               | 114                  | 34.5       |
| No Response                 | 2                    | 0.6        |
| Others                      | 89                   | 27         |
| <b>Parity</b>               |                      |            |
| 0                           | 115                  | 34.8       |
| 1 – 4                       | 213                  | 64.5       |
| >4                          | 2                    | 0.6        |

A total of 330 pregnant women were recruited for the study. The socio-demographic distribution of the respondents is shown in table 1. The mean age of the respondents was 29.37± 4.255 with a range of 16-42 years. Nearly all the women were Christians (99.4%) and married (95.2%). About 80.6% lived in urban settlements and more than half of them (58.5%) and their husbands (68.5%) had tertiary level of education. Almost two-third of the respondents (64.5%) were of

parity one to four. Table 2 showed the respondents' antenatal profile. Data from 275 respondents showed that 93.4% of them had more than 4 antenatal visits although only 15.4% of them booked in their first trimester. The most common reason for attending antenatal clinic was to assess foetal wellbeing (90.6%). Nearly one-third of respondents suggested that their husbands alone decided place to receive antenatal care while 27.3% decided jointly as a couple.

**TABLE 2: DISTRIBUTION OF ANTENATAL CARE PROFILE OF RESPONDENTS**

| Variable                               | Frequency(N=330) | Percentage |
|--|------------------|------------|
| <b>Total no. Of Antenatal Visits**</b> |                  |            |
| <4                                     | 18               | 6.6        |
| 4 – 6                                  | 93               | 33.8       |
| 7 – 9                                  | 118              | 42.9       |
| 10 – 12                                | 41               | 14.9       |
| >12                                    | 5                | 1.9        |
| <b>Trimester At Booking</b>            |                  |            |
| First                                  | 51               | 15.4       |
| Second                                 | 188              | 57.0       |
| Third                                  | 91               | 27.6       |
| <b>Reasons for Booking***</b>          |                  |            |
| Preference of Spouse                   | 212              | 64.2       |
| Preference of Mother-in-law            | 45               | 13.6       |
| To assess foetal wellbeing             | 299              | 90.6       |
| To detect maternal problems            | 285              | 86.4       |
| To receive tetanus toxoid              | 231              | 70.0       |
| To receive treatment                   | 284              | 86.1       |
| To obtain hospital card for delivery   | 282              | 85.5       |
| Others                                 | 10               | 3.0        |
| <b>Who Decides Place of ANC***</b>     |                  |            |
| Husband                                | 104              | 31.5       |
| Self                                   | 76               | 23.0       |
| Couple                                 | 90               | 27.3       |
| Family                                 | 24               | 7.3        |
| Mother-in-law                          | 13               | 3.9        |

Table 3 showed a list of services received and knowledge gained from antenatal care clinic attendance. The most common service received was measurement of weight (99.1%) and blood pressure (99.1%). Best place of delivery (97%) was the commonest knowledge gained from the clinic followed by care of the newborn (96.7%) and nutrition in pregnancy (96.1%).

Table 4 showed the multiple regression on the decision to use antenatal care. A double log

model was the lead equation, with the lowest standard error (SE) and highest relative coefficient  $R^2$ , to identify the factors that influence decision to use antenatal care. Out of the five independent variables, only two were statistically significant at  $p < 0.001$ . These were the nature and extent of antenatal care services, and knowledge of benefits of use of antenatal care services. The insignificant variables compared were maternal age, marital status, and maternal education.

**TABLE 3: DISTRIBUTION OF ANC SERVICES PROVIDED AND KNOWLEDGE BENEFIT DERIVED FROM THE ANTENATAL CLINIC**

| Variable                                     | Frequency | Percentage |
|--|-----------|------------|
| <b>Nature and extent of ANC Services***</b>  |           |            |
| Measurement of Height                        | 310       | 93.9       |
| Measurement of BP                            | 327       | 99.1       |
| Measurement of Weight                        | 327       | 99.1       |
| Abdominal Measurement                        | 311       | 94.8       |
| Haemoglobin Estimation                       | 306       | 92.7       |
| Blood Grouping                               | 277       | 83.9       |
| Haemoglobin Electrophoresis                  | 273       | 82.7       |
| Iron Supplementation                         | 306       | 92.7       |
| Anthelmintic                                 | 33        | 10.0       |
| HIV Counselling and Testing                  | 295       | 89.4       |
| IPTp   | 304       | 92.4       |
| Tetanus Toxoid                               | 255       | 77.3       |
| Insecticide Treated Net (ITN)                | 18        | 5.5        |
| <b>Knowledge Benefit Derived from ANC***</b> |           |            |
| Nutrition in Pregnancy                       | 317       | 96.1       |
| Care of the New Born                         | 319       | 96.7       |
| Family Planning                              | 299       | 90.6       |
| Progress in Pregnancy                        | 309       | 93.6       |
| Best Place of Delivery                       | 320       | 97.0       |
| Complications in Pregnancy                   | 301       | 93.0       |
| Actions in Complications                     | 309       | 93.6       |
| Exercise in Pregnancy                        | 146       | 44.2       |
| Care of the Breast                           | 26        | 7.9        |

**Source: Field Survey, 2013. \*\*\*Multiple responses allowed**

**TABLE 4: MULTIPLE REGRESSION ON THE RELATIONSHIP BETWEEN DECISION TO USE ANTENATAL CARE AND THE SOCIO-DEMOGRAPHIC WITH OTHER VARIABLES.**

| Variable Predictor   | Linear   | Double Log | Exponential | Semi-log |
|----------------------|----------|------------|-------------|----------|
| AGE (X1)             | 0.011    | 0.105      | 0.063       | 0.034    |
| (SE)                 | (0.020)  | (0.165)    | (0.005)     | (0.639)  |
| EANCS(X2)            | 0.141**  | 0.231***   | 0.144**     | 0.214*** |
| (SE)                 | (0.061)  | (0.145)    | (0.016)     | (0.556)  |
| MARITAL STATUS (X3)  | -0.009   | 0.015      | -0.007      | 0.008    |
| (SE)                 | (0.441)  | (0.116)    | (0.114)     | (0.458)  |
| KBANC (X4)           | 0.124**  | 0.225***   | 0.151**     | 0.170*** |
| (SE)                 | (0.063)  | (0.148)    | (0.016)     | (0.582)  |
| EDUCATION (X5)       | -0.117** | -0.090     | -0.090      | -.011**  |
| CONSTANT             | 3.426    | -1.697***  | 0.894***    | -2.733   |
| (SE)                 | (0.942)  | (0.725)    | (0.244)     | (2.826)  |
| <b>Model Summary</b> |          |            |             |          |
| R                    | 0.241    | 0.362      | 0.261       | 0.309    |
| R <sup>2</sup>       | 0.058    | 0.131      | 0.068       | 0.096    |
| F-VALUE              | 3.979    | 9.209      | 4.604       | 6.653    |
| S.E ESTIMATE         | 1.6756   | 0.4189     | 0.43089     | 1.65295  |
| SIGNIFICANCE         | 0.002    | 0.000      | 0.000       | 0.000    |

Dependent Variable = DTUANC

**Source: Field Survey, 2013.**

|      |        |   |  |
|------|--------|---|--|
| Key: | EANCS  | = | Nature and Extent of Ante-natal Care Services Provided |
|      | KBANC  | = | Knowledge of Benefit Derived from attending ANC        |
|      | DTUANC | = | Decision to use ANC                                    |
|      | *      |   | Significance at 0.10                                   |
|      | **     |   | Significance at 0.05                                   |
|      | ***    |   | Significance at 0.001                                  |

## DISCUSSION

Maternal age, education and marital status were not identified as factors that influence decision to use antenatal care services in this study. This contrasts with similar studies which identified them as significant risk factors.<sup>14,23,24</sup> After multiple regression, two factors were found to be significant at influencing the decision to use antenatal care. The first was the Nature and extent of antenatal care services provided by the health facility (p=0.000, SE=0.145). This was like other studies which reported that good antenatal care services provided tend to improve health-seeking behaviours during pregnancy.<sup>10,14</sup> In this study, the most reported services were measurement of weight (99.1%) and blood pressure (99.1%). This was like findings in other studies.<sup>11,14,23</sup>

The second factor was the knowledge of benefits derived from antenatal care (p=0.000, SE=0.148). Other studies with similar results found out that adequate knowledge gained during antenatal care visits influenced better health outcomes among pregnant women.<sup>25</sup>

It is worthy to note that although the prevalence of women attending 4 or more antenatal clinic visits in this study was 93.4%, only 15.4% registered in their first trimester. More than half of them (57%) registered in their second trimester. This finding was like high rates of registration at antenatal clinics in the second trimester reported in other studies.<sup>26,27</sup> Various reasons for late booking given in other studies included perceived correct time, inappropriate advice by providers, time constraint and incidence of unplanned pregnancies.<sup>28</sup>

In this study, about one-third of respondents (31.5%) reported their partners as the sole decision-maker of place of antenatal care, about a quarter (27.3%) made joint decision with their husbands and 23 percent decided on their own. Another study with slightly similar

findings was in Uganda where it was reported that 40.5 percent of the pregnant women jointly decided with their partner to use antenatal care services, 35 percent deciding on their own and 14.3 percent had their partners decide alone for them.<sup>20</sup>

## CONCLUSION

To fully utilize antenatal care services and gain adequate knowledge, pregnant women registration in first trimester increases ANC utilization and knowledge gained. Medical practitioners who serve as the gate keepers should provide pre-conception care for couples. The robust involvement of health care practitioners educating women during ANC will increase their knowledge of the benefits of ANC services.

Limitation of study: Due to the nature of the questionnaire, there was the possibility of the women considering the interviewer as part of the health team creating bias in response. This was reduced with the use of informed consent that specified full antenatal care service would be rendered even if respondents decide to opt-out of the study.

Conflict of interest: None

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