

# Sociodemographic Characteristics and Pregnancy outcome of Referred and Booked Parturients in a Nigerian Teaching Hospital

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## INTRODUCTION

Antenatal care (ANC) a component of maternal health care can be defined as care of the woman throughout pregnancy in order to ensure safe delivery of a healthy baby without detrimental effects on the mother's health<sup>1</sup>. The goal of the ANC package is to prepare for birth and parenthood as well as prevent, detect, alleviate, or manage health problems during pregnancy that affect mothers and babies<sup>2,3</sup>. These health problems include complications of pregnancy, pre-existing conditions that worsen during pregnancy and effects of unhealthy lifestyles. With a maternal mortality ratio of 630 deaths/100,000 live births, Nigeria still has one of the highest maternal mortality rates in the world<sup>4</sup>. Nigeria was not able to meet the fourth and fifth Millennium development goals (MDG) which included reduction of child mortality by two thirds for children under five and reduction by three-quarters the maternal mortality ratio by the year 2015<sup>5</sup>. Attendance at antenatal clinics and receipt of professional delivery care have been associated with a reduction in maternal deaths<sup>6,7</sup>. Antenatal care attendance in Nigeria varies from region to region, however average attendance said to be about 60% and this is much lower than that of neighbouring

countries<sup>8,9</sup>. The comparative figures were 88.0% for Benin (2006 DHS), 72.8% for Burkina Faso (2007 DHS), 83.4% for Cameroon (2004 DHS), and 91.9% for Ghana (2003 DHS)<sup>8</sup>. Poor utilization of antenatal care probably contributed to the failure to achieve the 4<sup>th</sup> and 5<sup>th</sup> millennium developmental goals<sup>10</sup>.

Low social class, low income and few educational achievements are some sociodemographic factors that have been shown by Kupek et al in the study in England and Wales to be barriers to early initiation of antenatal care<sup>11</sup>. Local studies here in Nigeria have also revealed that the choice of place to receive ANC and for delivery are influenced by sociodemographic factors<sup>12</sup>. Booked status is associated with better pregnancy outcome, studies have shown higher maternal and perinatal mortality, higher rates of admission into intensive care and higher rates of surgical deliveries among unbooked mothers<sup>13,14</sup>.

Quality of antenatal care services obtained has also been shown to be critical in enabling women receive adequate and appropriate care during pregnancy<sup>15</sup>. Some studies have shown high rates of antenatal care coverage co-existing with high maternal and neonatal mortality rates and have identified the gap to be as a result of inadequate or poor quality of antenatal care services<sup>9,15</sup>. Provision of quality ANC service requires the presence of relevant infrastructure, adequate trained health workers, infection control facilities, diagnostic equipment, supplies and essential drugs<sup>9</sup>.

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The booking clinic is the first antenatal clinic and it is at this time that detailed history of past and present pregnancies are obtained and pre-existing health conditions if any are identified. Patients that may be predisposed to developing certain health conditions during the course of pregnancy or worsening of pre-existing conditions are identified and this forms the foundation of subsequent antenatal visits and care. A good referral system is key to stemming maternal morbidities and mortalities in developing countries such as Nigeria that have poor obstetric, perinatal and health indices; utilization of such referral system in terms of timing and indications for referral is therefore important. The aim of the study was to describe the relationship of sociodemographic factors with booking status, referral characteristics and to compare the pregnancy outcomes of the booked and referred patients.

### **Materials and Methods**

This was a descriptive cross sectional study carried out among parturients in the gynaecological unit of the University of Ilorin Teaching Hospital, (UITH) Ilorin, Nigeria. Ilorin is the capital city of Kwara state which lies in the north central geopolitical zone of the country. The population was made up of Yoruba predominantly; others were Hausa, Nupe, Fulani and Igbo tribes. It is an urban community with primary, secondary and tertiary hospitals, a Federal and a state university and a polytechnic. It has a population of about 1,150,000 people<sup>16</sup>, a significant percentage are educated (school certificate levels and above). The population is made up of Moslems, Christians and traditional believers.

The study population were consecutive pregnant women that were admitted either into the emergency ward or the labour ward of the hospital in active labour. A total of 434 patients were recruited, data was collected through the use of an interviewer administered questionnaire which was made up of

sections on sociodemographic characteristics, history of present pregnancy and pregnancy outcome. The questionnaires were administered by research assistants. Information was obtained from the patients at presentation, as much as was possible, from the case folders for the booked cases, from patient relatives and also where necessary from the patients after delivery. The study duration was 6months from June to December 2014. The questionnaire was pre-tested before administering it to the study group. Purposive sampling of consecutive parturient that consented and met the inclusion criteria was done. The inclusion criteria were mainly presentation for emergency obstetric care or intervention and labour while women with less than 28 weeks gestational age were excluded. The study group was divided into two; booked mothers, and referred mothers. Booked patients or mothers were those who had attended antenatal clinic in our institution while a referred patient was a woman who had not received antenatal care in UITH facility but had been brought for obstetric care.

Ethical approval was obtained from UITH Ethical Review Committee for the survey. Patients also gave informed consent. The data collected was entered into and analyzed using the Statistical Package for Social Sciences (SPSS) version 17. The results were presented using frequency tables and percentages and summarized using relevant descriptive statistics such as means. Association between discrete variables was tested using Chi-square. The level of statistical significance was set at  $P < 0.05$ .

### **RESULTS**

A total of 434 patients were reviewed during the study period, of this number 153(35.3%) women were referred while 281(64.7%) were booked. The mean age of the booked patients was  $29.4 \pm 4.6$  years while that of the referred patients was  $28.3 \pm 5.2$ , overall mean age was  $29.0 \pm 4.8$  years.

Table 1: Shows the socio-demographic characteristics of thereferred compared to the booked patients. Statistical significant differences were found in the marital status(P <0.03), gravidity(P<0.009), social class(P<0.001) and average monthly income(P<0.001) of the patients.A greater percentage of the booked were married (65.6%) when compared to the referred patients (34.4%) and lesser percentage were single, also a significantly higher percentage of booked were multiparous (74.7%). About three quarters 75.4% (218) of those in the upper social class were booked while only about a quarter 24.6% (71) were referred.

The mode of delivery and pregnancy outcome of parturient and babies of booked versus referred cases are shown in Table 2. Among the booked patients 198(70.5%) achieved spontaneous vertex delivery (SVD) and 44(15.7%) had caesarean deliveries while only 67(43.8%) of the referred cases were able to achieve SVD with 66(43.1%) requiring caesarean sections, the difference was statistically significant(P<0.001). There were2(0.7%) neonatal deaths and 22(7.8%) neonatal intensive care admissions out of the 281 deliveries for the booked patients, while of the 153 referred cases, there were 18 neonatal(11.8%) deaths and

**Table 1:** Relationship between socio-demographic variables and booking status

Socio-demographic variables	Booked 281 (%)	Referred 153 (%)	$\chi^2$	p value
<b>Age group</b>				
< 20	3 (50.0)	3 (50.0)	6.619	0.085
20 – 29	142 (61.2)	90 (38.8)		
30 – 39	131 (70.8)	54 (29.2)		
≥ 40	5 (45.5)	6 (54.5)		
<b>Marital status</b>				
Single	4 (33.3)	8 (66.7)	5.331	0.030*
Married	277 (65.6)	145 (34.4)		
<b>Religion</b>				
Christian	87 (61.3)	55 (38.7)	1.119	0.290
Islam	194 (66.4)	98 (33.6)		
<b>Gravidity</b>				
1	71 (54.6)	59 (45.4)	9.422	0.009*
2 – 4	176 (70.4)	74 (29.6)		
≥ 5	34 (63.0)	20 (37.0)		
<b>Social class</b>				
Upper	218 (75.4)	71 (24.6)	49.958	<0.001*
Middle	43 (52.4)	39 (47.6)		
Lower	20 (31.7)	43 (68.3)		
<b>Average income(monthly)</b>				
< 20000	32 (46.4)	37 (53.6)	22.352	<0.001*
20000 – 39999	49 (58.3)	35 (41.7)		
40000 – 59999	54 (70.1)	23 (29.9)		
60000 – 79999	33 (78.6)	9 (21.4)		
≥ 80000	58 (78.4)	16 (21.6)		

$\chi^2$ : Chi square; \*: p value < 0.05 (i.e. statistically significant); NB: Patients who are unemployed and those who did not indicate their monthly income were not included in analysis of income

35(22.9%) babies were admitted into the neonatal intensive care unit. This also was statistically significant( $P<0.001$ ). The mean birth weight of babies born by booked women was  $3.0\pm 0.4$ kg while that of the referred was  $2.9\pm 0.5$ kg. APGAR scores at both 1 and 5 minutes for the booked was higher than for the referred and this was statistically significant( $P<0.001$ ). Need for specialist attention other than the obstetrician was not statistically significant. Also significant( $P<0.001$ ) was the need for blood transfusion, a greater percentage of the referred required transfusion 19(12.4%) while only 4(1.4%) of the booked patients required transfusion. Postpartum complications were not statistically significant although 15.5% of unbooked patients developed postpartum complications while 7.7% of the booked patients developed postpartum complications. There was 1(0.4%) maternal death

among the booked and 5(3.3%) among the referred. No mother was admitted into the adult intensive care unit.

Referral characteristics which included location from which patient was referred, referring personnel and indication for referral were examined in relation to the maternal and foetal outcome shown in tables 3 and 4. Majority 101(66%) were referred from government hospitals, either primary health care centres or secondary health care centres. The most common indication for referral was prolonged labour accounting for 18.9% of referrals while 29(18.9%) were referred either by themselves, Traditional birth attendants (TBA's) or low cadre health personnel like (Community health extension workers) CHEW's. There was no referral characteristic that was statistically significant for either foetal or maternal outcome.

**Table 2: Relationship between Maternal and Foetal outcome and Booking status**

Variable	Booked n = 281 (%)	Referred n = 153 (%)	$\chi^2$	p value
<b>Type of delivery</b>				
Spontaneous vaginal delivery	198 (70.5)	67 (43.8)	41.101	<0.001*
Assisted vaginal delivery	39 (13.9)	20 (13.1)		
Caesarean section	44 (15.7)	66 (43.1)		
<b>Required specialist care</b>				
Yes	5 (1.8)	1 (0.7)	0.921	0.670
No	276 (98.2)	152 (99.3)		
<b>Transfused with blood</b>				
Yes	4 (1.4)	19 (12.4)	23.861	<0.001*
No	277 (98.6)	134 (87.6)		
<b>Maternal Outcome</b>				
Alive	280 (99.6)	148 (96.7)	6.162	0.022*
Dead	1 (0.4)	5 (3.3)		
<b>Postpartum complication</b>	22(7.8)	23(15.0)	0.044	0.83
<b>Fetal outcome</b>				
Alive	257 (91.5)	100 (65.4)	51.542	<0.001*
Dead	2 (0.7)	18 (11.8)		
Need NICU admission	22 (7.8)	35 (22.9)		
<b>Apgar score (1<sup>st</sup> minute)</b>				
≤ 6	59 (21.0)	86 (56.2)	55.210	<0.001*
> 6	222 (79.0)	67 (43.8)		
<b>Apgar score (5<sup>th</sup> minute)</b>				
≤ 6	10 (3.6)	38 (24.8)	45.595	<0.001*
> 6	271 (96.4)	115 (75.2)		

$\chi^2$ : Chi square; \*: p value < 0.05 (i.e. statistically significant)

**Table 3:** Relationship between Referral Characteristics and Foetal outcome

Variable	Fetal Outcome			$\chi^2$	p value
	Alive n = 100 (%)	Dead n = 18 (%)	NICU admission n = 35 (%)		
<b>Source of referral</b>					
PHC	15 (57.7)	3 (11.5)	8 (30.8)	2.782	0.836
SHC	53 (70.7)	10 (13.3)	12 (16.0)		
Private hospital	30 (62.5)	5 (10.4)	13 (27.1)		
Others	2 (50.0)	0 (0.0)	2 (50.0)		
<b>Referring personnel</b>					
Medical officer	60 (62.5)	12 (12.5)	24 (25.0)	2.909	0.940
Nurse/ Midwife	22 (78.6)	2 (7.1)	4 (14.3)		
TBA	7 (63.6)	0 (0.0)	4 (36.4)		
CHEW	6 (60.0)	2 (20.0)	2 (20.0)		
Self	5 (62.5)	2 (25.0)	1 (12.5)		
<b>Indication for referral</b>					
PIH/Eclampsia/Pre eclampsia	8 (66.7)	0 (0.0)	4 (33.3)	20.734	0.293
CPD/ Obstructed labour	18 (66.7)	3 (11.1)	6 (22.2)		
Previous scar	5 (71.4)	0 (0.0)	2 (28.6)		
Antepartum heamorrhage	4 (50.0)	2 (25.0)	2 (25.0)		
Abnormal lie/ Presentation	9 (69.2)	0 (0.0)	1 (1.0)		
Prolonged labour	9 (90.0)	0 (0.0)	1 (10.0)		
SPROM	4 (44.4)	1 (11.2)	4 (44.4)		
Fetal complication/ distress	10 (41.7)	8 (33.3)	6 (25.0)		
Medical disorders in pregnancy	1 (50.0)	0 (0.0)	1 (50.0)		
Others (Non-medical/ Logistics)	32 (78.0)	1 (2.4)	8 (19.5)		

$\chi^2$ : Chi square, p value < 0.05 (i.e. statistically significant)

**Table 4:** Relationship between Referral Characteristics and Maternal outcome

Variable	Maternal Outcome		$\chi^2$	p value
	Alive n = 148 (%)	Dead n = 5 (%)		
<b>Source of referral</b>				
PHC	24 (92.3)	2 (7.7)	1.978	0.577
SHC	74 (98.7)	1 (1.3)		
Private hospital	46 (95.8)	2 (4.2)		
Others	4 (100.0)	0 (0.0)		
<b>Referring personnel</b>				
Medical officer	91 (94.8)	5 (5.2)	1.183	0.881
Nurse/ Midwife	28 (100.0)	0 (0.0)		
TBA	11 (100.0)	0 (0.0)		
CHEW	10 (100.0)	0 (0.0)		
Self	8 (100.0)	0 (0.0)		
<b>Indication for referral</b>				
PIH/Eclampsia/ Pre-eclampsia	12 (100.0)	0 (0.0)	4.700	0.860
CPD/ Obstructed labour	26 (96.3)	1 (3.7)		
Previous scar	7 (100.0)	0 (0.0)		
Antepartum haemorrhage	8 (100.0)	0 (0.0)		
Abnormal lie/ Presentation	12 (92.3)	1 (7.7)		
Prolonged labour	10 (100.0)	0 (0.0)		
SPROM	9 (100.0)	0 (0.0)		
Fetal complication/ distress	22 (91.7)	2 (8.3)		
Medical disorders in pregnancy	2 (100.0)	0 (0.0)		
Others (Non-medical/ Logistics)	40 (97.6)	1 (2.4)		

$\chi^2$ : Chi square;

## DISCUSSION

Regular antenatal care has significant impact on improving pregnancy outcome and this was also revealed in this study in which the booked patients had better maternal and foetal outcomes than the referred patients. Booked patients generally had higher sociodemographic factors such as higher income, higher levels of education and higher social class than the referred.

Two thirds (281, 64.7%) of the study population were booked for antenatal care in the teaching hospital while one third (153, 35.3%) were referred

there. Some of the referred patients had already registered and were receiving antenatal care in other facilities while some were not receiving any form of antenatal care at all. Nineteen (12.4%) patients had not previously registered for nor received antenatal care at all in any health facility or had received antenatal care with TBAs in religious centres or at their homes. This is comparable to what was obtained in previous studies in which 16.6% and 17% had not received antenatal care<sup>13,17</sup>. In the study by Igberase et al in a rural referral centre 22.4% had not received any antenatal care<sup>18</sup>. This is not unexpected in Nigeria where over one third of

pregnant women are said not to attend Antenatal Care (ANC) service during pregnancy<sup>9</sup>. Utilization of antenatal care services is known to be affected by the setting whether rural or urban, with a higher antenatal care attendance in the urban setting and probably explains the slightly lower percentage of such women in this study which was in an urban setting. A statistically significant higher percentage of the singles were referred compared with those who were married, this is probably because the financial and psychological support to enable them make right decisions about obtaining adequate maternity care may be lacking.

Referred mothers were generally younger in age though this was not statistically significant, this is also similar to what was obtained in some previous studies<sup>9,10</sup>. Gravidity which shows the number of pregnancies the parturient has ever had including the present pregnancy was also statistically significant. Generally more multiparous women had booked for antenatal care and received antenatal care in the Teaching Hospital, this included the grand multiparous women that had had more than 4 parous experiences. This could possibly be as a result of experiences from the previous delivery/ies or increasing awareness of dangers associated increasing parity and grand multiparity which is generally associated with higher maternal and perinatal complications.

Referred patients and spouses were found to have lower educational status, less skilled jobs and lower monthly income resulting in a lower socioeconomic status than the booked patients and all these variables were found to be statistically significant. This was in keeping with previous study by Chigbuet al<sup>13</sup>. Maternal and spouse level of education are both important factors that determine use of antenatal care services in this study. Education probably helps one to appreciate the associated risks of pregnancy, and benefits of using

skilled health care versus unskilled. Harrison also showed that education was a strong determinant of maternal morbidity and mortality<sup>19</sup>. The lower the education the more likely it was to believe myths and probably less likely to identify and differentiate between standard and substandard healthcare facilities. Poor economic status may make it difficult to make informed decisions about appropriate use of standard healthcare services which they may perceive as expensive and unaffordable. Providing free or subsidized antenatal care services will certainly have a positive impact on antenatal care use.

Pregnancy outcomes in the referred mothers were significantly poorer than in the booked mothers, higher incidence of caesarean section rates, NICU admissions and greater number of neonatal deaths were observed. There were more maternal deaths among the referred mothers and more complications requiring specialist intervention. This is similar to what was obtained in several studies<sup>19-21</sup>. Commonest indications for referral included prolonged labour followed by foetal distress requiring emergency intervention, thereby leading to high caesarean sections and poor perinatal conditions.

About two thirds of the women 47(31.8%) were referred by traditional birth attendants, community health extension workers or just came by themselves suggesting that they either presented at health facilities lacking trained staff or did not present in any centre for antenatal care. There is need for training of TBA, this was found to be the most promising intervention for reducing perinatal mortality and morbidity by the WHO but emphasis on this is quite low<sup>22</sup>. It appears that TBA's still play a significant role in maternal care and this appears to be increasing with the worsening global recession and economic issues.

Moreover there is a need to ensure that health facilities licensed to offer maternity services are staffed with adequately trained personnel. This would also help to prevent and correct delayed referrals and the attendant problems. The specific reasons for not attending antenatal care were not covered by the research tool. Previous studies have suggested poverty and transportation problems<sup>9</sup>. Knowledge of these factors could likely help to tackle and subsequently help to improve utilization of this important service. .

The study was carried out in a Teaching Hospital and this could possibly have had an influence on the status of patients that booked in the study centre. Also, some of the referred cases had received some form of antenatal care in other facilities before presentation. In a tertiary facility like the study centre, prompt and specialist care will ultimately give better outcome than other facilities with limited specialist care. These factors constitute limitations to finding in this study.

In this environment routine and adequate antenatal care is significantly related to favourable maternal and foetal outcomes, especially among parturients with good sociodemographic characteristics. General improvement in levels of literacy as well as training of TBA's will also almost certainly improve antenatal care attendance with a subsequent reduction in maternal and perinatal mortality.

AUTHORS DO NOT HAVE ANY CONFLICT OF INTEREST TO DECLARE.

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