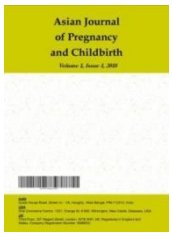

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Multiple Antenatal Care Bookings among Pregnant Women in Urban and Rural Communities of Ebonyi State, Nigeria: A Mixed Method Study

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Authors' contributions

This work was carried out in collaboration among all authors. Author ENO conceptualized the study. Authors ENO, PCE, PAA and EUN did the literature searches designed the study and wrote the study protocol. Author PCE supervised the collection of data. Author ENO did the data analysis and wrote the initial draft of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Aims: To determine the factors influencing multiple antenatal care bookings among pregnant women in urban and rural communities of Ebonyi state, Nigeria.
Study Design: This was a community based cross-sectional comparative study design using a sequential mixed method exploratory approach.
Place and Duration of Study: The study was conducted in urban and rural communities of Ebonyi State, Nigeria between September and October 2017.
Methodology: A two stage sampling method was used to select 660 women who have been delivered of babies within one year preceding the study irrespective of place of antenatal care. Also the respondents were permanent residents of the selected communities for one year. Eight focus

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group discussions were conducted among women who delivered within one year preceding the study and those pregnant during the period of study. Twelve key informant interviews were also conducted among providers of antenatal care in health facilities in the selected communities. Chi square test of statistical significance and multivariate analysis using binary logistic regression were used in the analysis and level of statistical significance was determined by a p value of <0.05. QDA Miner Lite v2.0.6 was used in the analysis of qualitative data.

Results: The mean age of respondents were 29.6±6.2 and 28.6±5.1years in urban and rural communities respectively. A significantly higher proportion of respondents in urban area, 34.5% registered for antenatal care in more than one health facility when compared to those in rural, 25.8%. (p=0.014). The major reason for multiple antenatal care bookings in the urban was because of strike actions by health workers in the public health sector while in the rural, it was because of emergency which may occur during the period of pregnancy or labour. Predictor of multiple antenatal bookings among the respondents was the attainment of tertiary education. (A0R=1.7; 95%C1: 1.1-2.6).

Conclusion: More than a third of the respondents registered for antenatal care in more than one health facility. The reasons for this practice are a manifestation of the weaknesses of the health system and at a high cost to the women and the country especially as Nigeria bears the highest burden of maternal deaths globally. The Government of Nigeria should bring to an end the frequent industrial actions in the public health sector. There is also the need to train the health workers and enlighten the populace on referral system. These may serve as initial steps towards embracing quality maternal health services in Nigeria.

Keywords: Multiple antenatal care; pregnancy; urban; rural; Ebonyi State; Nigeria.

1. INTRODUCTION

Antenatal care is the care given to a woman during pregnancy. Its main purpose is to ensure good health outcomes both for mother and baby [1]. When provided by a skilled provider, it helps to monitor the pregnancy and reduce morbidity risks for the mother and child during pregnancy and delivery [1]. The World Health Organization (WH0) defines a skilled attendant as an "accredited health professional such as a midwife, doctor or nurse who has been educated and trained proficiency in the skill needed to manage normal (uncomplicated) pregnancy, childbirth and the immediate post partum period and in the identification, management and referral of complication in women and newborns" [2]. The WHO excludes traditional birth attendants from this category of workers defined as skilled attendants [3] however in Nigeria, an auxillary nurse or midwife is also regarded as a skilled health worker for the provision of antenatal care services [1].

Globally, 86% of pregnant women have access to a skilled health personnel for antenatal care at least once while pregnant while 62% make at least four antenatal visits with a skilled health personnel during pregnancy [4]. Incidentally, in sub Saharan Africa, where maternal mortality is the highest in the world, only 46% of pregnant women make at least four antenatal visits [4]. Nigeria bears the highest burden of maternal deaths globally by accounting for 19% of total maternal deaths in the world [5]. In Nigeria, 51% of pregnant women make at least four antenatal visits while 34% of the women receive no form of antenatal care [1]. In Ebonyi state, Nigeria, 85.1% of pregnant women received antenatal care from a skilled provider [1] There is evidence that women who utilized antenatal care services have an increased likelihood of having a skilled attendant during delivery [6] and utilization of antenatal care and subsequent delivery with the assistance of a skilled birth attendant have been associated with an improvement in maternal and neonatal health [7,8].

There has been an observation that some women make use of multiple health facilities for antenatal care during pregnancy [9]. In instances where a woman lives far from a major health facility, this practice affords her the opportunity of registering for antenatal care in a health facility close to her home [10]. However this practice of registering for antenatal care in more than one health facility is also considered wasteful with the risk that important follow up appointments during the pregnancy period may be missed [10]. Thus the practice is viewed with mixed feelings. This study was designed to determine the factors influencing multiple antenatal care bookings among pregnant women in urban and rural communities of Ebonyi state, Nigeria.

2. MATERIALS AND METHODS

2.1 Description of Study Area

The study was conducted in Ebonyi State which is one of the five states in the southeast geo-political zone of Nigeria. It occupies a land mass of 5,533 kilometer square and is situated between latitude 6^0 15^1N and 8^0 05^1E and longitude 6^0 250^1 N and 8.03^0E [11]. The state has boundaries in the north with Benue State, in the east with Cross-River State, in the south with Abia State and in the west with Enugu State. The population of the state was 2,176,947 people based on the 2006 national population census with a growth rate of 2.6% per annum. Majority of the inhabitants, more than 75% live in the rural areas [11]. The inhabitants are mainly of Igbo ethnic nationality with mixture of other tribes and are predominantly Christians. Ebonyi State has 13 local government areas of which three are designated as urban while the remaining ten local government areas are classified as rural [12]. Ebonyi state health system like that of Nigeria is based on the primary health care system which is linked to the secondary and territory healthcare levels by a two way referral system [13]. There are 545 public health facilities in the state including 530 primary health care facilities, 13 secondary health care facilities and two tertiary health institutions [14] with many mission and private-for-profit health facilities.

2.2 Study Design

This was a community based cross-sectional comparative study design using a sequential mixed method exploratory approach.

2.3 Study Population

The study population were women who have been delivered of babies within one year preceding the study, which was indicated by the first day of data collection irrespective of where the woman attended antenatal care. Also the women must be permanent residents of the selected communities for at least one year. Sixty nine women participated in eight focus group discussions, thirty three of the women were pregnant during the period of study while thirty six delivered their babies at least one year before the commencement of the study. Twelve providers of antenatal care participated in key informant interviews. Half of the providers serve in the urban area. Six were officers in charge of primary health centers while two were Chief Nursing Officers of a tertiary health institution and a mission hospital. One was the Medical Officer in charge of a General hospital. All the women and the providers of antenatal care who refused to give consent were excluded from the study.

2.4 Sample Size Determination

The sample size for the quantitative aspect of the study was determined using the formula for comparing two independent proportions [15]. From a previous study in Abakaliki, Nigeria, an average of 27.8% of respondents utilized multiple health facilities for antenatal care [9]. A total of 330 women was included in each group based on a type 1 error (α) of 0.05 in a two sided test with a power of 0.8 and a design effect of 2.0.

Eight focus group discussions were conducted, four each in selected urban and rural communities of the state. Four of the focus group discussions, two each in the urban and rural areas were conducted among women who have been delivered of babies within one year preceding the study while the remaining four were among women who were pregnant during the period of the study. Individuals recruited for the focus group discussions were exempted from the questionnaire administration so as not to introduce bias to the results since they may be better informed than others. Purposive selection was used in recruiting the women for participation in the focus group discussions.

Twelve key informant interviews were conducted among providers of antenatal care in health facilities located in the communities selected for the study. The participants included officers-in-charge of primary health centers in the selected communities however where the selected health facility was a mission hospital or tertiary health institution the providers were the Chief Nursing Officers of the health facilities. The Medical Officer in charge of a General hospital also participated in the study. Purposive selection was used in selecting the health facilities and the providers also.

2.4.1 Sampling technique

A two stage sampling technique was used in selecting the women for inclusion in the study. In the first stage, two local government areas each were selected from the three urban and ten rural local government areas of the state using a simple random sampling technique of balloting.

In the second stage, two communities each were selected from a list of communities in the selected local government areas using a simple random sampling technique of balloting. In the selected communities, any woman that meets the inclusion criteria were included in the study until the sample size was reached. The first respondent was selected by spinning a bottle in an agreed center of the community and moving from house to house following the direction of the bottle.

2.5 Study Instrument

This was a mixed method study. A pretested, semi-structured, interviewer administered questionnaire which was designed by the researchers was used to obtain information from the respondents. For the qualitative method, a focus group discussion and key informant guides were used to obtain information from the women and health providers respectively. The researchers conducted the interviews. The key informant interviews were conducted using English language while the focus group discussions were conducted in the local language, Igbo and the discussions took place in secluded places like public primary schools and community town halls and lasted for about twenty to twenty five minutes each. All the interviews were recorded manually and with the use of recorders also.

2.6 Data Analysis

Data entry and analysis were done using IBM Statistical Package for Social Sciences (SPSS) statistical software version 22. Frequency distribution and cross tabulations were generated. Chi square test of statistical significance and multivariate analysis using binary logistic regression were used in the analysis and the level of statistical significance was determined by a p value of less than 0.05. QDA Miner Lite v2.0.6 was used in the analysis of qualitative data.

Variables that had a p value of less than 0.2 on bivariate analysis (including location, number of children, marital status, employment status of respondents, educational attainment of respondents, and socio-economic status of respondent) were entered into the logistic regression model to determine the predictor of multiple antenatal care bookings, (educational attainment of respondent). The result of the logistic regression analysis were reported using adjusted odds ratio and 95% confidential interval and the level of statistical significance was determined by a p value of <0.05.

The outcome measure of the study was multiple antenatal care bookings among the respondents and this was assessed by respondents who registered for antenatal care in more than one health facility irrespective of the training acquired by the provider in the indicated health facility.

The socio-economic status index was developed using Principal Component Analysis, (PCA) in STATA statistical software version 12. The input to the PCA included information on estimated household monthly income and ownership of ten household items that included gas cooker, television, refrigerator, cable television, electric fan, air conditioner, motor vehicle, generator, microwave oven and washing machine. For calculation of distribution cut points, quartiles, (Q) were used. Each respondent was assigned the wealth index score of her household. The quartiles were Q1 = poorest, Q2= the very poor, Q3= the poor and Q4= least poor. The quartiles were further dichotomized into low socio-economic class comprising the poorest and very poor and high socio-economic class made up of the poor and least poor groups. In determining the factors affecting multiple antenatal care registrations among the respondents, the age of respondents was categorized into two groups, those ≤30 years and >30years. The basis of this categorization was the mean of the mea ages of the two study groups which was 29.1 years.

The recorded discussions of focus group discussions and key informant interviews were transcribed verbatim following each session by transcribers and then translated to English by two individuals with good command of both languages. For quality assurance purposes, the scripts were compared with the written notes for completeness and accuracy. Then each script was checked against the audiotape by an independent reviewer. As a way of verifying the quality of translations, tapes were doubly transcribed after which both scripts were checked for similarity and where differences existed, these were reconciled by the transcribers. The main theme of the discussions was why women book for antenatal care in more than one health facility and for the women what determines the place for delivery under such circumstances.

3. RESULTS

Table 1 shows the socio-demographic characteristics of the respondents. The mean age of respondents in the urban, (29.6±6.2 years) was higher than those in the rural, (28.6±5.1 years) and the difference in mean was found to be statistically significant, (Student t=2.691, p=0.007). The highest proportion of the respondents in the urban area have attained tertiary education, 53.6% while that for the rural attained secondary education, 61.2% and the difference in proportions was found to be statistically significant, (χ^2 =208.961, p<0.001).

Table 2 shows multiple antenatal care bookings among the respondents. A significantly higher proportion of the respondents in the urban area, 34.5% registered for antenatal care in more than one health facility when compared to those in the rural, 25.8%. (χ^2 =6.050, p=0.014).

Table 3 shows the reasons for multiple antenatal care bookings among the respondents. Among respondents in the urban area, the major reason for multiple antenatal care bookings is because of strike actions by health workers in the public health sector in Nigeria. In the rural area, the major reason is because of emergency which may occur during the period of pregnancy or labour and could not be managed by health workers in the primary health care system.

Table 4 shows the factors affecting multiple antenatal care bookings among the respondents in the study area. The respondents who have attained tertiary education were about twice more likely to register for antenatal care in more than one health facility when compared with those who attained secondary education and below. (A0R=1.7; 95%C1: 1.1-2.6).

3.1 Focus Group Discussion

3.1.1 Participants' profile

The age range of study participants in the urban area was 24 to 35 years and the median age was 31 years. In the rural area, it was 20 to 34 years with a median age of 26 years. Most of the participants in the urban area, 70% have attained tertiary education while in the rural area, 60% of the participants have had secondary education. Most of the participants in the urban area were on salaried employment while in the rural area most were self-employed.

3.1.2 Why women register for antenatal care in more than one health facility

According to the participants, women register for antenatal care in more than one health facility to avoid being stranded during pregnancy or the period of labour. Almost all the participants in the urban area were of the opinion that the incessant strike actions by health workers in the public health sector was the major reason why women register for antenatal care in more than one health facility. This maybe because the public health facilities are the main health facilities in the urban area so there are the chances that the woman maybe without assistance if the health workers embark on strike action anytime during the period of pregnancy. This was how one of the participants made her thoughts known:

> *"The health workers in government owned health facilities are always going on strike and because you cannot be sure when a strike action will begin, after registering for antenatal care in a government hospital you may have to register again in another health facility like a private or mission hospital since they do not go on strike"* (Discussant, urban).

Among the participants in the rural area, the fear of a referral during labour especially due to unforeseen emergency is the major reason that necessitates a woman registering for antenatal care in more than one health facility. One of the participants had this to say:

> "*It is good to register in any place of your choice for antenatal care but you must ensure that you register in a government hospital like a General hospital where there are doctors in case of emergency"* (Discussant, rural).

This concept also applies to women who patronize traditional birth attendants as they are aware that emergency may arise which maybe beyond the capacity of the traditional birth attendants. One of the participants expressed her thoughts this way:

> *"Registering for antenatal care in more than one facility makes it easier for one to be referred from lower centres like traditional birth attendants and patent medicine*

vendors to health centres or hospital in case complications arise during pregnancy or labour" (Discussant, rural).

It was also observed that sometimes the service providers encourage them to register for antenatal care in more than one place for the same reason of emergency. One of the participants expressed her views this way:

"The woman that own a private maternity (a traditional birth attendant) encouraged every woman to register in another health facility where there is a doctor in case of emergency or issues that require referral so that you will get adequate care there" (Discussant, rural).

Incidentally, this same fear of emergency also plays a role in registering for antenatal care among participants in the urban area. One of the participants presented it this way:

"If a woman registers for antenatal care only in a primary health center or private hospital close to her, depending on her case, there may be the need to refer her to a 'bigger' hospital during labour. If she did not register in that 'big' hospital (like a tertiary health facility) there could be challenges or delays in accessing care there. So it is safer to register for antenatal care in more than one health facility, preferably a health center or private hospital and then a 'big' government hospital" (Discussant, urban).

Table 1. Socio-demographic characteristics of the respondents

Variable	Urban (n=330) N (%)	Rural (n=330) N (%)	χ^2	p value
Age of respondents in years				
Mean±(SD)	29.6±6.2	28.6±5.1	2.691*	0.007
Age of respondents in groups				
<25 years	59 (17.9)	64 (19.4)	3.334	0.343
25-29 years	109 (33,0)	127 (38.5)		
30-34 years	99 (30.0)	85 (25.8)		
≥35 years	63 (19.1)	54 (16.4)		
Number of children				
One child	59 (17.9)	89 (27.0)	18.152	<0.001
2-4 children	232 (70.3)	179 (54.2)		
≥5 children	39 (11.8)	62 (18.8)		
Marital status				
Never married	18 (5.5)	30 (9.1)	3.990	0.136
Married	310 (93.9)	296 (89.7)		
Separated/divorced	2 (0.6)	4 (1.2)		
Ethnicity				
Igbo	298 (90.3)	327 (99.4)	FT	<0.001
Yoruba	16 (4.8)	1 (0.3)		
Hausa	8 (2.4)	1 (0.3)		
Minority tribes	8 (2.4)	0 (0.0)		
Religion				
Christianity	307 (93.0)	324 (98.2)	FT	<0.001
Traditional religion	7 (2.1)	6 (1.8)		
Islam	16 (4.8)	0 (0.0)		
Educational attainment of respondent				
No formal education	4 (1.2)	8 (2.4)	208.961	<0.001
Primary education	12 (3.6)	100 (30.3)		
Secondary education	137 (41.5)	202 (61.2)		
Tertiary education	177 (53.6)	20 (6.1)		
Employment status of respondent				
Unemployed	69 (20.9)	57 (17.3)	98.143	<0.001
Self-employed	129 (39.1)	242 (73.3)		
Salaried employment	132 (40.0)	31 (9.4)		

Table 2. Multiple booking for antenatal care among the respondents

Variable	Urban (n=330) N (%)	Rural (n=330) N (%)	χ^2	p value
Multiple booking for antenatal care				
Yes	114 (34.5)	85 (25.8)	6.050	0.014
No	216 (66.5)	245 (74.2)		

Table 3. Reasons for multiple antenatal bookings among the respondents

Variable	Urban (n=330) N (%)	Rural (n=330) N (%)	χ^2	p value
Place of first antenatal booking				
Maternity home/TBA*	7 (6.1)	4 (4.7)	FT	<0.001
Primary health center	3 (2.6)	62 (72.9)		
General hospital	0 (0.0)	9 (10.6)		
Tertiary health facility	76 (66.7)	3 (3.5)		
Private/mission hospital	28 (24.6)	7 (8.2)		
Place of second antenatal booking				
Maternity home/TBA*	6 (5.3)	8 (9.4)	74.832	<0.001
Primary health center	13 (11.4)	18 (21.2)		
General hospital	1 (0.9)	36 (42.4)		
Tertiary health facility	12 (10.5)	2 (2.4)		
Private/mission hospital	82 (71.9)	21 (24.7)		
Reason for multiple antenatal booking				
Strike action by health workers in public health sector	64 (56.1)	16 (18.8)	42.038	<0.001
In-case of emergency during pregnancy/labour	31 (27.2)	42 (49.4)		
To consult a medical doctor	1 (0.9)	14 (16.5)		
Proximity of health facility to home	10 (8,8)	11 (12.9)		
For quality healthcare	8 (7.0)	2 (2.4)		

**Traditional birth attendant*

Proximity to the health facility from the home of the woman is another factor that influences multiple antenatal care registrations among the participants in the urban and rural areas. This was to ensure that the woman was not caught unaware in case labour starts at a very odd hour. A participant in the urban area summarized it this way:

> *"After you have registered for antenatal care in the health facility of your choice, you have to register in another facility close to your residence, in case labour starts at an odd hour or you feel it is difficult to reach the first place of registration then you go to the health facility that is close to you"* (Discussion, urban).

For participants in the rural area, the quest for quality healthcare also influences registering for antenatal care in more than one health facility. One of the participants echoed her thoughts thus:

> *"If one is not comfortable or satisfied with services received in a particular place where she registered for antenatal care, the person may be forced to go and register in another health facility"* (Discussant, rural).

This quest for quality antenatal care was also collaborated by three participants in the urban area and this time also being influenced by the views of others. One of the participants made known her thoughts this way:

> *"When you hear of good care and services rendered in another health facility where you did not register for antenatal care, you can decide to go to that particular place and benefit from the good services"* (Discussant, urban).

Table 4. Factors affecting multiple antenatal care bookings among the respondents

Variable	Multiple antenatal care booking (n=660)		p value**	***AOR (95%CI)
	Yes N (%)	No N (%)		
Location				
Urban	114 (34.5)	216 (66.5)	0.014	1.1 (0.7 – 1.6)
Rural	85 (25.8)	245 (74.2)		
Age of respondents				
≤30 years	127 (29.3)	307 (70.7)	0.490	NA
>30 years	72 (31.9)	154 (68.1)		
Number of children				
One child	36 (24.3)	112 (75.7)	0.079	0.9 (0.6- 1.4)
≥2 children	163 (31.8)	349 (68.2)		
Marital status				
Single*	10 (18.5)	44 (81.5)	0.052	0.7 (0.3 – 1.6)
Married	189 (31.2)	417 (68.8)		
Employment status of respondent				
Unemployed	31 (24.6)	95 (75.4)	0.131	0.8 (0.5 – 1.3)
Employed	168 (31.5)	366 (68.5)		
Husband employment status				
Unemployed	5 (50.0)	5 (50.0)	<0.001	NA
Self-employment	102 (25.8)	294 (74.2)		
Salaried employment	82 (41.0)	118 (59.0)		
Educational attainment of respondent				
Tertiary education	81 (41.1)	116 (58.9)	<0.001	1.7 (1.1 – 2.6)
Others***	118 (25.5)	345 (74.5)		
Educational attainment of Husband				
Tertiary education	95 (42.0)	131 (58.0)	<0.001	NA
Others****	94 (24.7)	286 (75.3)		
Socio-economic status				
Low socio-economic class	80 (24.2)	250 (75.8)	0.001	0.8 (0.5 – 1.2)
High socio-economic class	119 (36.1)	211 (63.9)		

**Never married, separated/divorced; **P value on bivariate analysis; NA: Not applicable*
***** Secondary education and less; ***Adjusted odds ratio, 95% Confidence Interval*

3.1.3 What determines place of delivery in cases of multiple registration for antenatal care

Most of the participants in the urban and rural areas viewed perceived quality of care received during antenatal care as the main factor influencing where a woman will deliver her baby following multiple antenatal care registrations. This perceived quality of care was expressed by the participants in various ways and in some instances it took prominence over cost and distance. These were exemplified by the following quotes:

> *"For me (the speaker) it is the particular health facility where the providers know my name and relate to me personally and will make sure that we (the women) are comfortable whenever we come for antenatal care"* (Discussant, rural).

> *"I will choose the heath facility to deliver my baby based on the testimony of other women about the health facilities involved and I will be particular about the reputation of that facility for safe delivery"* (Discussant, urban).

Among participants in the urban and rural areas, the timing of labour is the second major factor that determines the place of delivery by women who register for antenatal care in more than one health facility. These were expressed by the participants in the following ways:

> *"People accompanying you during labour like your husband and mother in-law may decide for you especially if you registered in a health facility that is far or labour started at night. They may decide to take you to a health facility that is nearer home"* (Discussant, rural).

> *"The condition of the baby at the time of labour is also important. For instance during labour, if the condition of the baby needs specialist care then you may have to go where help will be obtained not minding the cost"* (Discussant, urban).

Four participants in the urban and rural areas indicated that cost of delivery is also a determining factor in deciding where to deliver if a woman registers for antenatal care in more than one health facility. One of the participants in the urban area had this to say:

> *"When other factors are favourable, then you will have to look at the money charged for delivery in each of the health facilities and then choose the one to deliver based on your financial strength"* (Discussant, urban).

3.1.4 Key informant interview

3.1.4.1 Participants' profile

The age range of the discussants was 35 to 53 years with a median age of 47 years. Five of the discussants were trained nurses/midwives while one is a medical practitioner. The years of experience of the discussants ranged from 8 to 24 years. Nine of the discussants were officers-in-charge of primary health centers, two were chief nursing officers of a tertiary health institution and a mission hospital while one is a Medical Officer in-charge of a General hospital. Six of the discussants have been in their current positions for 3 years and more. Eleven of the discussants were females and half of the discussants serve in the urban area.

3.1.5 Reason women register for antenatal care in more than one health facility

All the participants in the two study groups pointed out that the women register for antenatal care in more than one health facility as a way of preparing for delivery. Most of the participants were of the opinion that it was to ensure that they (the women) are not treated as 'un-booked' (not formally registered for antenatal care) in that particular health facility during labour. The two main reasons for this included industrial action by health workers in public health facilities in form of strike actions and referral from one level of care to another due to complications arising during pregnancy or labour. The fear of strike action by health workers applied more to urban residents while that of referral was related more to inhabitants of the rural area. These were how the participants expressed their views:

> *"Some women decide to register for antenatal care in both private and government owned hospitals in case health workers in government health facilities embark on strike during the period of the pregnancy. This will ensure she is not stranded when labour sets in"* (Participant, urban).

> *"We (the health workers) advise the women to register for antenatal care in another hospital that is more equipped and with medical doctors in case of any emergency, because in this health facility (a health center) we don't have all it takes to take care of them when there are complications. We do that so that when we refer them to such hospitals they will be attended to immediately instead of regarding them as 'emergency or un-booked' which is associated with delays in management"* (Discussant, urban).

The women who anticipate a referral from a traditional birth attendant to a primary health center or another hospital are also not left out. One of the participants had this to say:

> *"The women who patronize traditional birth attendants may not want to be blamed for not booking for antenatal care in a health facility in case a problem arises during labour. Therefore, they register with a traditional birth attendant and a health center or any other health facility"* (Participant, rural).

Two participants, one each in urban and rural areas pointed out the importance of proximity in multiple antenatal care registrations among the women. One of the participants presented her thoughts this way:

> *"The women informed us that they register for antenatal care in more than one health facility so that during labour, they can go to the nearest place for delivery"* (Participants, rural).

One participant in the urban area had a different opinion from others. According to her the women use the opportunity to compare quality of care during antenatal care and also cost and then take a decision. She had this to say:

"The women use the opportunity of registering for antenatal care in different facilities to compare the quality of care in the health facilities and sometimes cost of services before deciding on where to deliver their babies" (Discussant, urban).

4. DISCUSSION

A significantly higher proportion of the respondents in the urban area, 34.5% registered for antenatal care in more than one health facility when compared with those in the rural area, 25.8%. These proportions are lower than that obtained in a study in Enugu, Nigeria, where majority of the respondents in that study, 65.9% booked for antenatal care in more than one health facility [10]. However in an earlier study in Abakaliki, southeast Nigeria, 25% and 30.5% of the respondents in the two clinics utilized for the study received antenatal care from multiple health facilities during pregnancy [9]. From the pattern of utilization of health facilities for antenatal care among the two study groups, the respondents in the urban area of the state favour the use of tertiary health facility for antenatal care while those in the rural areas prefer the use of primary health centers for the same purpose.

From the results of the questionnaire administration, focus group discussions and key informant interviews, the major reason by the respondents for utilizing multiple antenatal care centers in the urban area was to avoid the frequent strikes by health workers in the public health sector in Nigeria. In the rural area, the major reason was to prevent being regarded as un-booked in the next level of healthcare should there be an emergency situation during pregnancy or labour which may not be taken care of in the primary health care system. These reasons may have necessitated the prominence in use of private/mission hospitals as the preferred place of booking for antenatal care in the second registration process in the urban where industrial actions by health workers in that group of health facilities are unknown. Also, registration for antenatal care in General hospitals in the rural areas was high in the second registration process because they are better prepared for obstetric emergencies since they always have medical doctors in their employment.

The spate of industrial actions in the health sector in Nigeria has been described as alarming [16] and has been found to negatively affect the economic development of the country because of low national productivity [16]. Also, the frequent strikes by public sector health workers in Nigeria engenders dissatisfaction with services received by the patients [17] and has resulted in loss of confidence in the health system and also the healthcare professions [18]. Perhaps, it is this dissatisfaction that made the women resort to self-help by registering for antenatal care in more than one health facility. This is at a high cost to the health system especially when one reckons that Nigeria bears the highest burden of maternal deaths globally [5]. In this regard, the government of Nigeria has a responsibility to her citizens to bring to an end to the numerous industrial actions in the public health sector while also ensuring that it honours all agreements with the various labour unions in the Nigerian health sector [18].

It is pertinent to point out that the health policy of Nigeria is based on the primary health care system with linkage to other levels of care (secondary and tertiary levels) via a two way referral system [13]. It is thus odd for health workers to encourage the women to register for antenatal care in another level of healthcare as a way of ensuring access to care in that level instead of initiating a referral when the need arises. This error should be immediately corrected by health authorities in Nigeria. It has been observed that knowledge and practice of referral were poor among health workers in both urban and rural primary health centers in Nigeria [19]. This necessitated the call for the immediate training of health workers on referral so as to improve the practice among health workers in both urban and rural primary health centers [19]. Similarly, in a study in a tertiary health institution in Nigeria, majority of the patients that presented in the health facility were not referred to the facility thus by-passing the primary and secondary levels of healthcare [20]. Invariably, it could be concluded that both patients and health workers have a poor understanding of the referral system in Nigeria.

There is evidence that utilization of primary health centers for delivery services is poor in Nigeria [21]. Also, the utilization of maternal health services in the primary health system in Nigeria has also been known to be easily affected by some weaknesses in the social system like when there are security challenges [22]. Thus it has been postulated that adequate attention should be given to the primary health care system in a bid to improve the maternal

death burden in Nigeria [21]. Thus there is the need to train the health workers in all levels of care in Nigeria on referral. The pregnant women in the study area should be commended for doing their best in overcoming the observed deficiencies in the health system in Nigeria. This is because they understand the implications of presenting in another level of healthcare service delivery in Nigeria as an un-booked or emergency obstetric case. They should however be adequately supported by encouraging the referral of women from one level of care to the other instead of being allowed to shoulder the weaknesses of the health system. Suffice it to say that booking for antenatal care in more than one health facility because of proximity to the home of the woman is of good account to the woman, her family and the health system in Nigeria. This has been observed to be of a good effect [10]. From the results of the study. It is important to point out the central role quality of healthcare plays among the women and providers of antenatal care. Thus putting an end to frequent strikes among health workers in the public health sector in Nigeria and training the health workers in all levels of healthcare and the citizens on referral system may serve as the initial steps towards embracing quality maternal health services in Nigeria.

The respondents in the study area who have attained tertiary education were about twice more likely to use multiple health facilities for antenatal care when compared with those who did not attain tertiary education. In Nigeria, female education is of immense importance to positive health outcomes. For example, from the results of Nigeria Demographic and Health Survey, 97% of women with more than a secondary education received antenatal care from a skilled provider as against 36% of women without formal education [1]. Educated women have been known to be more aware of health problems and the availability of healthcare services. They also utilize information better concerning health than those who are not educated [23]. In this context, the respondents who have attained tertiary education have well utilized the information not to be treated as un-booked or as an emergency obstetric case hence the tendency to register for antenatal care services in more than one health facility. This has been identified as waste of resources [10]. In Nigeria, it has also been found that both the educated and non-educated are unaware of the referral system [20] hence even those who have attained tertiary education in this study have done their best on a personal level to overcome what ordinarily could be solved as a health system issue.

5. CONCLUSION

More than a third of the respondents registered for antenatal care in more than one health facility. The reasons for this practice are a manifestation of the weaknesses of the health system and at a high cost to the women and the country especially as Nigeria bears the highest burden of maternal deaths globally. The government of Nigeria should bring to an end the frequent industrial actions in the public health sector. There is the need to train the health workers and enlighten the populace on referral system. These may serve as initial steps towards embracing quality maternal health services in Nigeria.

ETHICAL APPROVAL AND CONSENT

Ethical approval for the study was obtained from the Research and Ethics Committee of Ebonyi State University Abakaliki, Nigeria. The respondents and participants in the focus group and key informant interviews were required to sign a written informed consent form before participating in the study. Participants were assured that participation in the study was voluntary. They were also informed that information that will be obtained for the study will be treated anonymously and confidentially. All the women and the providers of antenatal care who refused to give consent were excluded from the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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