

## ANTENATAL BLOOD DONATION: PERCEPTION OF PREGNANT WOMEN IN A RURAL COMMUNITY NORTHWEST NIGERIA.

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### ABSTRACT

**Background:** Reduction of maternal mortality from Obstetric haemorrhage requires a multipronged approach; however, availability of safe blood and transfusion is essential to it.

**Objectives:** To evaluate pregnant women perception towards blood donation by their relatives/spouses for them during antenatal period and attitude towards compulsory blood donation.

**Method:** A cross-sectional study using an interviewer-administered semi-structured pretested questionnaire was used to assess the perception of pregnant women to blood donation by their relatives/partner during antenatal care. The data was analysed using SPSS.

**Result:** Four hundred respondents, ages ranged from 15 - 45 years with a mean of  $30.9 \pm 5.80$  years and parity ranged from 0 - 12 with a median of 24 (Interquartile range of 25, 20; 50, 24; 75, 29.8). Three hundred and eighty-six (96.5%) were married; 258 (64.5%) knew that they may need blood during childbirth of which 228 (88.4%) would rely on their relatives/partners to donate the blood. Three hundred and thirty-two (83.0%) were willing to ask their partners /relatives to donate blood for them during antenatal care, while 68 (17.0%) opposed it for various reasons.

Occupation, marital status, parity and age were found to be statistically significant ( $X^2 = 24.8$  P = 0.0001;  $X^2 = 8.18$ , P = 0.0004;  $X^2 = 15.39$  P = 0.000 and  $X^2 = 22.14$  P = 0.0001 respectively)

**Conclusion:** Majority of the respondents were aware that they may require blood during pregnancy or childbirth for which they believed that their partners/relatives would donate blood for them if requested to do so; although one-fifth would rather wait until the need arises. Knowledge of voluntary blood donation is poor among the respondents. Public enlightenment would help to address these gaps.

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### INTRODUCTION

The death of a woman during pregnancy, childbirth or in puerperium remains unacceptably high in developing countries; with majority arising from the rural areas [1]. Worldwide, an estimated 303 000 maternal deaths occurred in 2015, and obstetric haemorrhage was one of the prominent causes [1, 2]. This is also buttressed by reports from nationwide survey on maternal deaths across Nigeria by Ntoimo et al. and Oladapo et al. [3, 4].

Obstetric haemorrhage is a broad term which includes all causes of antepartum and postpartum haemorrhage. It usually presents as an emergency, and indeed in 2013, it accounted for 49.0% of maternal near misses and 24.4% of maternal deaths in Nigeria [4]. Interestingly, its occurrence is largely unpredictable [5] limiting prevention of maternal

deaths from obstetric haemorrhage to early presentation and prompt institution of appropriate management at the health facilities irrespective of the underlying cause. Transfusion of blood and products remains an essential part of any of the treatment modalities hence it is not surprising that the Obstetrics unit of most facilities, majorly accounts for the request and utilization of blood and products in Nigeria [6]. More often than not, the demand for blood and products outstrips the supply; particularly in health facilities where voluntary blood donation is not well established and other methods of sourcing for blood are relied upon [7]. It is pertinent to note that only 5% of blood donated in Nigeria are voluntarily donated with potential implications for services delivery and standard of practice [7]. Currently, many of the secondary and tertiary health facilities in Nigeria rely on replacement and paid donors [8, 9].

Significantly contributing to this unacceptably high maternal mortality ratio are the 3 delays: delay in deciding to seek for care, in getting to the point of care and in receiving care at the health facility [10]. The many reasons behind these delays vary according to the setting, but majority can be anticipated and planned for. The birth preparedness and complication readiness plan is an opportunity that can be utilized by the policymakers,

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community, healthcare provider, family and finally the pregnant woman to address possible delays related to seeking care [11].

One of the main steps that a pregnant woman in conjunction with her partner can take to address this possible cause of delay related to obstetric haemorrhage would be to identify a potential donor who would likely donate if the need arises, but this is often not done. Instead, most men in northern Nigeria are mainly engaged with planning for the naming ceremony and post-partum cultural practices believing that all will be well with the mother and child [12] which is often the case but sometimes not.

In an attempt to bridge this gap, many secondary and tertiary health facilities have resulted to compulsory antenatal blood donation by spouses or relatives of the pregnant women receiving care at their facility [13, 14, 15] and this has significantly addressed the challenges of sourcing for blood. However, this system is not without challenges such as non-compliance by the women [14] and biased utilization of antenatal care services [15].

In Jigawa state, about 50% of pregnant women receive antenatal care from skilled birth attendants [16], and many of the health facilities are faced with the challenges of sourcing for blood as they still operate the replacement blood donation system. Hence we decided to evaluate what pregnant women attending antenatal care at Federal Medical Centre Birnin Kudu Jigawa State knew about how blood is being sourced, their perception towards blood donation by their relatives/spouses for them during antenatal period and attitude towards compulsory blood donation.

The findings from this survey may influence the hospital policy regarding blood donation and sourcing of donors for pregnant women receiving care in the hospital.

## Materials and Methods

### Study setting and Subjects

This study was carried out at the antenatal clinic of Federal Medical Centre (FMC) in Birnin Kudu Jigawa state which is in the northwest geopolitical zone of the country. Birnin Kudu is an ancient city and the local government headquarters in the south of Jigawa state of Nigeria. According to the 2006 population census, it had a population of 314, 108 inhabitants and a projected population of 419,800 in 2016[17]. They are predominantly Muslims and Hausa/Fulani by ethnicity. Their major occupation is farming. Birnin Kudu is about 130 km south-east of Kano city, the commercial nerve centre of northern Nigeria.

The Federal Medical Centre is a 250 bedded tertiary health facility, and it serves the health care needs of the people in the community. It also receives referrals from other hospitals in the state and neighbouring northern states like Kano and Bauchi. The antenatal clinic is covered by 3 consultant obstetricians, 3 medical officers and 5 midwives.

The study population included pregnant women attending the antenatal clinic of the institution

### Inclusion criteria

Pregnant women receiving antenatal care at the institution only and were 36 weeks or more.

### Exclusion criteria:

1. Pregnant women receiving antenatal care in other health facilities
2. Those that were critically ill
3. Jehovah witnesses as they do not utilise blood and products in consonance with their belief
4. All women that do not consent to the study.

### Study design and Sampling strategy

This study is descriptive and cross-sectional in design. A sample of 373 was obtained. This was also adjusted to compensate for a non-response rate of 10%, and the final minimum sample size was 414.

### Research Instrument

A structured interviewer-administered questionnaire adapted from a previous study [13] to assess the women's knowledge on sourcing for blood, their perception to blood donation by partners/relatives and compulsory donation. The questionnaires were pre-tested on a sample of 30 women attending General hospital Birnin Kudu. This was done to ascertain the appropriateness, sensitivity of the questions, and comprehensibility. The questionnaire was in English language though another version in Hausa language was made available for natives. It was professionally translated, and the accuracy of the translation was checked by back translation done by a different translator. This was done to identify differences in translation that could alter the meaning of the questions. The administration of the anonymised questionnaires was by student midwives in the antenatal clinic to the eligible women. The student midwives were trained on questionnaire administration technique by the authors before the commencement of the study. A systematic sampling technique was used to select women who were eligible and consented to participate in the study. Based on the average monthly attendance at the clinic, the sampling frame and subsequently, a sampling interval were obtained. The first respondent for each day was selected by balloting, and subsequently, other respondents to be recruited were determined based on the sampling interval. This was continued until the desired sample size was achieved.

### Ethical Consideration

The study proposal was submitted for approval by the Ethics and Research Committee of the Federal Medical Centre Birnin Kudu, and informed consent was obtained from the participants. The participants were assured of confidentiality, and that non-participation in the study would not in any way affect the care they would receive.

### Data Analysis

The data obtained from the questionnaires was entered and analysed using statistical package for social sciences (SPSS) version 22.0 (Chicago IL USA). Qualitative variables were summarized using frequencies and percentages. Means and standard deviation was used to summarize quantitative variable. The Chi-square test was used for evaluating association between categorical variables as appropriate. Statistical significance was said to be achieved when  $P$  value was  $0.05$ .

### Results

During the study period, 414 respondents were approached to participate in the study, of which 400 (96.6%) agreed to participate.

### Sample description

The ages of the respondents ranged from 15 to 45 years with a mean of  $30.9 \pm 5.80$  years while the parity ranged from 0 to 12 with a median of 24 and Interquartile range of (25, 20; 50, 24; 75,29.8). Three hundred and eighty-six (96.5%) were married; of which 254(65.8%) were in monogamous unions while 132(34.2%) were in polygamous relationships. Of those in polygamous relationships; 94(71.2%) of them were the second wives, 32(24.2%) were third wives while 12 (9.0%) were the fourth wives of their husbands. Fourteen (3.5%) were single; of which 6(1.5%) were divorcees and 8 (2.0%) were never married. Two hundred and forty-three ( 60.8%) were of Hausa ethnicity, and 170 (42.5%) had attained secondary level of education. Three hundred and forty – seven (86.7%) were Muslims, and 53 (13.2%) were Christians. One hundred and forty-four (36.0%) were housewives while 22 (5.0%) grouped as others included: 4 hairdressers, 2 security officers and 14 civil servants.

Table I describes socio-economic characteristics of the respondents.

### Perception on Sourcing for blood and the need for transfusion

*“Do you know that you may need blood during pregnancy or childbirth”?* Of the 400 respondents, 258 (64.5%) knew that they may need blood during childbirth of which 228 (88.4%) would rely on their relatives/partners to donate the blood, 16(6.2%) would source blood from paid donors while 14(5.4%) would expect the hospital to provide the needed blood.

*“Where does the hospital source blood for its bank”?* One hundred and ninety-four respondents (48.5%) affirmed that they knew the sources; of which 143(73.7%) felt they were from relatives of the clients, 38(19.6%) believed it was from voluntary donors while 24(12.4%) believed it was from commercial paid donors.

*“Would you encourage your partner/ relatives to donate blood during antenatal care before childbirth if requested to do so by the hospital”?*

Majority of the respondents 332(83.0%) were willing to ask their partners /relatives to donate blood for them during antenatal care while 68(17.0%) opposed it for various reasons such as: they may not use the blood (n= 36; 52.9%), partners / relatives would not agree to do so (n= 22; 32.4%), fear of ill health following blood donation (n= 8; 11.8%) and a few respondents did not think it was right for them to donate blood (n= 2; 2.9%)

Table III shows the association between socio-demographic characteristics and knowledge about the need for blood transfusion during pregnancy/childbirth.

The level of education and religion were not found to be statistically significant( $X^2= 1.30$  P = 0.25; and  $X^2 = 0.63$ , P = 0.63 respectively) while age, marital status parity and employment were statistically significant as shown in Table III.

### Discussion

Obstetric haemorrhage remains one of the leading causes of maternal death and the epileptic supply of safe blood remains a challenge in many of our health facilities. Compulsory antenatal donation of blood by relatives/partners of pregnant women receiving care at some of these facilities has significantly helped in addressing the situation in some health facilities [14, 15]. Awareness on the possibility of being transfused with

blood either during pregnancy or childbirth was high as about 2 out of 3 women studied knew that they were at risk and identified that their relatives or partners would possibly donate blood for them. This is not surprising considering the fact that majority of the women had experienced childbirth and knew some of the risks associated with pregnancy and childbirth. Noteworthy is the fact that about one-fifth of the respondents would not encourage their partners or relatives to donate blood during antenatal care if the request was made for them mainly because they felt that the blood donated may not be used. They would rather wait until the need arose. This perception encourages replacement form of blood donation to the bank which is practised in our health facility and many others, and this negates the principle behind blood banking as the request and utilization of blood cannot be predicted. Voluntary blood donation remains a viable alternative to replacement donation, and it is adjudged the best form of sourcing for blood [9, 13, 18]. It is interesting to note that only about one-fifth of the respondents were aware of this source of blood donation to the hospital. Majority of the women may not be aware of voluntary blood donation as the practice is unpopular in the community for reasons ranging from fear of being screened for HIV, misconception about the risk of developing ill health after donating blood which will hinder them from resuming their routine activities and the availability of paid donors [19, 20, 21].

Women that are young, employed and had delivered before were more likely to know that pregnant women are at risk of blood transfusion either during pregnancy or childbirth. This may be because employed women are more likely to be better educated and attend antenatal care and may have had personal experiences or witnessed some cases where blood transfusion was necessary.

This study brings to fore the perception of women residing in rural community towards antenatal blood donation. However, the willingness demonstrated by the women to encourage their partners/relatives towards antenatal blood donation may not be reliable as this does not translate to the actual blood donation as those that would likely donate may be in a better position to say. Also, since only about half of the pregnant women receive antenatal care from skilled birth attendants in Jigawa state, this study cannot be extrapolated to other women in the rural part of the state; nevertheless, it has identified some gaps that can be worked upon.

Due to differences in research tool used in this study, it may not be comparable to most other studies regarding perception of pregnant women to antenatal blood donation. However, findings from this study regarding the awareness of pregnant women on the need for blood transfusion during pregnancy or childbirth of 64.5% is slightly greater than the 58.5% reported by Isiaka-Lawal et al. from Ilorin North Central [22] but much lower than the 90.7% reported by Adesina et al. [14] from Ibadan in South-West Nigeria.

In reducing maternal mortality, it is of utmost importance for the healthcare personnel that pregnant women attending antenatal care are in support of voluntary blood donation, particularly from their partners /relatives to address the perennial challenge of lack of blood in the hospital. The hospital management board and

policymakers would need to create awareness about voluntary blood donation in the hospital by involving the community gatekeepers (like the traditional, religious and opinion leaders). Furthermore, policymakers may need to modify the existing laws on blood donation to encourage voluntary donation and accommodate provision of some incentives to regular volunteer donors such as having free access to blood and products should there be need for it as well as acknowledging them. Also, they may want to look at the possibility of commencing compulsory antenatal blood donation by partners/relatives of pregnant women receiving care in the hospital.

From the findings above, it may be worthwhile to further evaluate the perception and attitude of men (partners/relatives of pregnant women) concerning antenatal blood donation since a third of the respondents were in polygamous relationships.

### Conclusion

Majority of the respondents were aware that they may require blood during pregnancy or childbirth for which they believed that their partners/relatives would donate blood for them if requested to do so; although one-fifth would rather wait until the need arises. Knowledge of voluntary blood donation is poor among the respondents. Public enlightenment would help to address these gaps.

Table I shows the Socio-demographic characteristics of the respondents = 400

Age (years)	Frequency n (%)
<20	52(13.0)
20 - 29	248(62.0)
30 - 39	92(23.0)
40 - 49	8(2.0)
Ethnicity	
Hausa	243(60.8)
Fulani	89(22.3)
Yoruba	38(9.5)
Igbo	22(5.5)
Others	8(2.0)
Educational status	
None	94(23.5)
Primary	64(16.0)
Secondary	170(42.5)
Post Secondary	72(18.0)

Table I Socio-demographic characteristics continued

Occupation	N (%)
Housewives	144(36.0)
Petty Trading	142(35.5)
Tailoring	50(12.5)
Teaching	44(11.0)
Civil Service	14(3.5)
Others(hairdresser, security)	6(1.5)
Parity	
0	54(13.5)
1- 4	276(69.0)
5 and above	(17.5)

Table II shows some of the responses to questions on perception of pregnant women to antenatal blood donation. N = 400

Questions	N (%)
<i>You may need blood during pregnancy or childbirth?</i>	
Yes	258(64.5)
No	142(35.5)
<i>Have you been transfused during this pregnancy or during previous pregnancy or childbirth"?</i>	
Yes	114(28.5)
No	286(71.5)
<i>Would you come for antenatal care in this facility if there a policy on compulsory antenatal blood donation in place"?</i>	
Yes	372(93.0)
No	28(7.0)

Table 3 : Association between awareness about the need for blood during pregnancy/childbirth and socio-demographic characteristics (N=400).

Socio-demographic characteristic	Need for blood during pregnancy/childbirth		Chi-squared test ( $\chi^2$ )	p-value
	yes n (%)	no n (%)		
<i>Age, years</i>				
< 30	174(58.0)	126(42.0)	22.14	0.0001
30 and above	84(84.0)	16(16.0)		
<i>Ethnicity</i>				
Hausa/Fulani	216(65.1)	116(54.9)	0.27	0.61
Others	42(61.8)	26(38.2)		
<i>Marital Status</i>				
Unmarried	4(28.6)	10(71.4)	8.18	0.004
Married	254(65.8)	132(34.2)		
<i>Occupation</i>				
Not Employed	70(48.6)	74(51.4)	24.81	0.0001
Employed	188(73.4)	68(26.6)		
<i>Parity</i>				
Nulliparous	22(40.7)	32(59.3)	15.39	0.000
Parous	236(68.2)	110(31.8)		

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