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BLOOD DONATION AND TRANSFUSION: PERCEPTION OF PREGNANT WOMEN ATTENDING THE ANTENATAL CLINIC AT USMANU DANFODIYO UNIVERSITY TEACHING HOSPITAL, SOKOTO

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ABSTRACT

Background: Obstetric heamorrhage remains the leading cause of maternal mortality worldwide and the recommended model for procurement of safe and cheap blood available round the clock is through non remunerated voluntary blood donation from low risk population. **Aim:** To assess the perception of pregnant women to blood donation and transfusion. **Methodology**: This was a cross sectional study carried out at the antenatal clinic of Usmanu Danfodiyo University Teaching Hospital, Sokoto. Data was collected using interviewer administered questionnaire over a 12 weeks period. Data was analyzed using SPSS version 22. Descriptive statistics was done and presented in means, standard deviation and percentages. Chi-square test was used to determine the association between categorical variables and a *p* value of <0.05 was considered statistically significant. **Result:** The mean age of the respondents was 27.24 ± 5.5 years. The youngest was 18 years while the eldest was 42 years. The modal parity was nullipara. Most of the respondents have tertiary level of education yet about 42% were unemployed. Majority have good perception of antepartum blood donation (83.30%) and 93.3 % will accept antepartum donation if the need arises. However, they have poor perception about effect of blood donation on the donor. **Conclusion:** The study revealed good perception and acceptability of antepartum blood donation among women attending the antennal clinic. However, they have poor perception about effect of blood donation on the donor.

KEYWORDS: Antenatal blood donation, Perception, Acceptability.

INTRODUCTION

The leading causes of maternal mortality are preventable, yet the number of maternal deaths is still worrisome worldwide especially in the developing countries.[1] The World Health Organization (WHO) quote a maternal mortality ratio of 216/100000 live births,[1] this value is still very far from the United Nations sustainable development goal (SDG) of reducing global maternal mortality to less than 70/100,000 live births by 2030. Obstetric haemorrhage is the leading cause of direct maternal death, worldwide.[2] This havoc is more in developing countries, accounting for 34% of maternal death in Africa, 31% in Asia and only 13% in developed countries.[2] Substandard management in addition to inadequacy of blood and blood product transfusion services are recognized as contributory factors to 80% of maternal deaths linked with obstetric haemorrhage in sub-Saharan Africa.[3,4,2] Obstetric complications and particularly obstetric heamorrhage remain the leading reason for blood transfusion in developing countries,[5] making it pertinent to improve blood availability and also services. This may be in the form of voluntary or compulsory antenatal blood donation with aim of reducing maternal morbidity and mortality in developing

countries.[2] In most developing countries, and in particular sub-Saharan Africa, blood transfusion services are rendered by the hospitals.

Women with obstetric haemorrhage have to find a 'replacement' donor among family and friends or a paid donor. The potential donors are screened for infections such as HIV and Hepatis viruses, their blood is grouped and compatibility of donors and recipients checked. These processes results in significant delays in obtaining safe blood for transfusion increasing the burden on families at the time of emotional and financial stress when the woman is in dire need of the blood transfusion. Overall, 80% of blood for transfusion in sub-Saharan Africa comes from replacement donors.[6] Centralized, national systems that collect blood only from voluntary non-remunerated blood donors from low risk populations are the recommended model for transfusion services,[7] but they are complex to organize and more expensive than hospital-based systems. Only a few African countries have implemented centralized service with most of them depending on external funding, making sustainability doubtful.[2]

The aim of the study was to determine the perception and acceptability of antenatal blood donation among pregnant women attending the antenatal clinic at Usmanu Danfodiyo University Teaching Hospital, Sokoto. Also to assess the factors associated with acceptability of blood transfusion.

MATERIALS AND METHODS

This was a cross-sectional study conducted among pregnant women registered for antenatal care between 1st of September to 30th of November 2019 at UDUTH Sokoto. Pregnant women attending the antenatal care clinic of Usmanu Danfodiyo University Teaching Hospital, Sokoto who have consented to participate in the study were recruited. All patients who were not registered for antenatal care in the hospital were excluded.

Interviewer administered questioner was filled for each woman and information on socio-demographic characteristics of the pregnant women, parity, perception on blood donation and acceptability of blood donation and transfusion were documented. Ethical approval was obtained from UDUTH health research and ethics committee. Informed consent was also obtained from the participants before data collection.

Sample size determination

The minimum sample size was determined using the formula for descriptive cross-sectional study.

$$n = \frac{Z^2pq}{d^2}$$

Where:

n= minimum sample size

Z = Standard normal deviate at 95% confidence level = 1.96

p = willingness to donate blood, Rate = 94.9 (0.949) (Abduljaleel et al, 2019)

q =1-p (0.051)

d = degree of accuracy needed (0.05, using 95% confidence interval)

Therefore $n = \frac{1.96^2 (0.949) (0.051)}{(0.05)^2}$

$= \frac{0.18593}{0.0025}$

$= 74.34 = 75$

To increase the power of the study, the sample size was multiplied by 2

Hence 150 participants were recruited.

Data analysis

The information obtained was analyzed using SPSS version 22. Categorical variables were presented in number and percentages. Tables and figures were used to display the results. Chi square was used to test for any significant association between the acceptability of blood donation and level of education, occupation and ethnicity. Level of significance was set at $p< 0.05$.

RESULT

The age of the respondents was 27.24± 5.5. The youngest was 18 years while the eldest was 42 years. The modal parity was nullipara. Majority were Hausa and Muslims. Most respondents had at least tertiary level of education and 42% were unemployed. The sociodemographic characteristics are shown in Table 1.

Table 1: Socio-demographic characteristics of the respondent.

Characteristics	Number	Percentage
Age		
Less than 20 years	6	4
20 to 24 years	45	30
25 to 29 years	48	32
30-34 years	32	21.3
35 and above	19	12.7
Ethnicity		
Hausa	102	68
Igbo	13	8.7
Yoruba	13	8.7
Others	22	14.6
Occupation		

Unemployed	63	42
Civil servant	33	22
Business	44	29.3
Others	10	6.7
Religion		
Islam	120	80
Christianity	30	20
Educational status		
No Formal Education	13	8.7
Primary	8	5.3
Secondary	49	32.7
Tertiary	80	53.3
Parity		
Nullipara	49	32.9
Multipara	85	57.0
Grandmultipara	15	10.1

Majority of the respondents had good perception about blood donation and believed that antenatal blood donation is good. The perception is shown in figure 1.

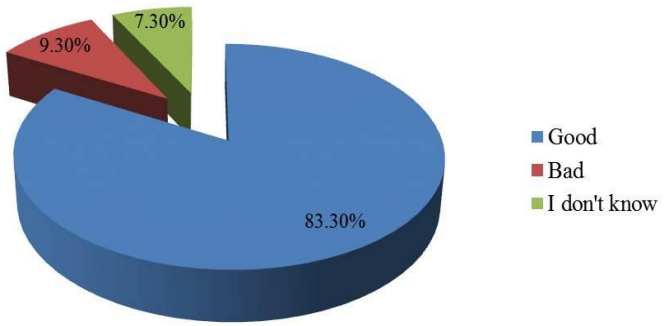

Figure1: Perception of pregnant women on antepartum blood donation

All the respondents that had good perception would accept the idea of antepartum blood donation. This is shown in figure.

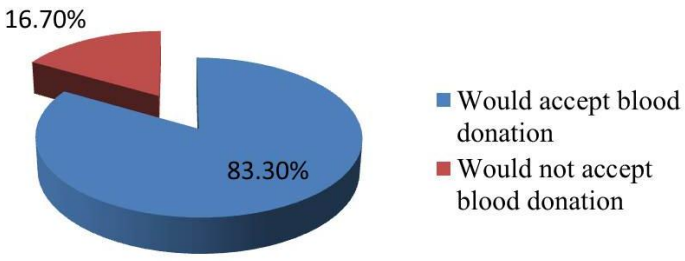

Figure 2: Acceptability of blood donation

Most of the respondents that accepted blood donation were between the ages of 20-34years and there was no significant association between age group distribution and acceptability of blood donation (χ^2= 5.827, p = 0.212). Similarly, there was no significant association between ethnicity and acceptability of blood donation. A higher percentage of those with secondary and tertiary level of education accepted blood donation. However, there was no significant association between educational status and acceptability of blood donation (χ^2 = 2.435, p = 0.487). The factors associated with blood donation are shown in Table 2.

Table 2: Factors associated with blood donation.

	Acceptability of blood donation			
Factors	**Yes n (%)**	**No n (%)**	χ^2	***P* value**
Age group				
Less than 20 years	4 (4)	1 (4)		
20-24 years	36 (28.8)	9 (36.0)		
25-29 years	44 (35.2)	4 (16.0)	5.827	0.212
30-34 years	27 (21.6)	5 (20.0)		
35 and above	13 (10.4)	6 (24.0)		
Tribe				
Hausa	86 (68.8)	16 (64.0)		
Igbo	12 (9.6)	1 (13.0)	2.617	0.480
Yoruba	9 (7.2)	4 (16.0)		
Others	18 (14.4)	4 (16.0)		
Educational status				
No formal educ.	10 (8.0)	3 (12.0)		
Primary	8 (6.4)	0 (0)	2.435	0.487
Secondary	42 (33.6)	7 (28.0)		
Tertiary	65 (52.0)	15 (60.0)		
Occupation				
Unemployed	58 (46.4)	5 (20.0)		
Civil servant	26 (20.8)	7 (28.0)	6.392	0.094
Business	34 (27.2)	10 (40.0)		
Others	7 (5.6)	3 (12.0)		
Parity				
Nullipara	42 (33.9)	7 (28)		
Multipara	70 (56.5)	15 (60)	0.375	0.829
Grand multipara	12 (9.7)	3 (12.0)		

More than 90% of the respondents are willing to accept blood transfusion if the need arises.

Most of the participants had poor perception of the effect of blood donation on donors and believe that blood donation can lead to weakness, convulsion, loss of sexual drive and death. This is shown in Table 3.

Table 3: Perception of pregnant women about effect of blood donation on donors.

Perception	**Number**	**Percentage**
Blood donation can lead to weakness		
Strongly disagree	19	12.7
Disagree	33	22.0
Neither agree nor disagree	33	22.0
Agree	50	33.3
Strongly agree	15	10.0
Blood donation can lead to loss of sexual drive		
Strongly disagree	20	13.3
Disagree	54	36.0
Neither agree nor disagree	49	32.7
Agree	25	16.7
Strongly agree	2	1.3
Blood donation can lead to convulsion	24	16
Strongly disagree	48	32
Disagree	50	33.3
Neither agree nor disagree	27	18

Agree Strongly agree	1	0.7
Blood donation can lead to death Strongly disagree Disagree Neither agree nor disagree Agree Strongly agree	 46 52 27 21 4	 30.7 34.7 18.0 14.0 2.7

DISCUSSION

The requirement for blood donation is persistently on the increase worldwide.[8] about 88 million unit of blood of the 150 million unit of blood required annually is donated worldwide.[8] Non remunerated voluntary blood donation is high in developed countries like Switzerland and Japan where number of voluntary blood donors per 1,000 populations is 113 and 70 respectively.[8] The same is not the case in the developing countries where it is just 8 for every 1,000 population in India.[8] In Nigeria the story is not different, at our current level of health care delivery, it is estimated that about 1.5 million units of blood per annum is required, and of this only about half a million units of blood were collected from private and public sources.[9,10] This is grossly inadequate for a country of about120 million people. [9, 10] A study conducted in Maiduguri, Nigeria reveal a fall in percentage of voluntary blood donation from 31% to 5% over a 5 year period with concomitant rise in percentage of paid donors from 20% to 63% over the same studied period.[11] Not less than 99 per cent of the 500,000 women that die yearly from pregnancy complications and childbirth live in sub Saharan African countries with obstetric haemorrhage which requires immediate blood transfusion, the most common cause of maternal deaths.[5, 8] A survey conducted in Nigeria in 2005 revealed that in the public sector 25% and 75% of donated blood are commercial and replacement donor respectively. whilst voluntary non-remunerated donors are still negligible. In the private sector, the reverse obtains with 75% and 25% respectively being commercial and replacement donors whilst voluntary donors are insignificant. This is an unfortunate situation which should not be allowed to linger. It underscores the immediate need for a system that will address the issue of transfusion donation practice and transfusion safety in Nigeria.[10]

Until this is addressed, compulsory antenatal blood donation which is a known policy in some tertiary health centres in Nigeria may be in existence for a while.

The mean age of the respondents of 27.24± 5.5 is less than 31.6 and 31years in the studies conducted in Jordan and Ibadan respectively.[1,12] This may be due to the religion and cultural practice of the population studied where early marriage is practiced in the study area.

Majority of the respondents were Hausa and Muslims, this may be because the study was conducted in Sokoto where the inhabitants are mainly Muslims and Hausa.

Although most respondents had at least tertiary level of education yet 42% were unemployed, this may be due to the global problem of unemployment or religious and cultural believe of husbands preventing their wives from taking up employment.

Majority of the respondents were multipara. This may be due to location of the study, where the studied population is located is Hausa and Muslim dominated population known for desired for large number of children due to the religious belief and cultural practice in addition to competition for number of children due to the polygamous setting of most families. This is similar to the study conducted in Ibadan where majority of the respondents are multipara constituting 64% of the respondents.[1]

Majority of the respondents had good perception about blood donation and believe that antenatal blood donation is good and would accept the idea of antepartum blood donation. Though the figure is less than that observed by other studies conducted, where participants willingness to blood donation was good.[1,13, 14] This is however higher than the study conducted in Lagos where the willingness to accept blood donation was 77%.[15, 16] This may be due to the fact that majority of the studied population are multipara and would have in one way or the other been expose to the need for urgent blood transfusion.

Most of the respondents that accepted blood donation were between the ages of 20-34 this was similar to the study conducted in Ibadan where the ages of the respondents was 20-35 which constitute peak of reproduction and there was no significant association between age group distribution and acceptability of blood donation (χ^2= 5.827, p = 0.212). Similarly, there was no significant association between ethnicity and acceptability of blood donation, this is not surprising as obstetric heamorrhage cut across all ethnic groups. A higher percentage of those with secondary and tertiary level of education accepted blood donation. The educated naturally may be well informed about the benefits and complications of blood donation and transfusion. However, there was no significant association between educational status and acceptability of blood donation (χ^2 = 2.435, p = 0.487). This contradict finding of other studies who found positive association between educational status and acceptance of blood donation.

CONCLUSION

Pregnant women attending the antenatal clinic in this study have good perception about antenatal blood donation and transfusion. The acceptability of antenatal blood donation and transfusion in this study is also high as they believe is a good practice. The government and health facilities should increase education and awareness for voluntary blood donation among low risk individuals for the purpose of saving life. In the interim, health facilities like ours may adopt the policy of compulsory antenatal blood donation. No woman should die from lack of blood for immediate transfusion during pregnancy, labour and pueperium.

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