

## ORIGINAL ARTICLE

# Community survey on blood donation practices in a northern state of Nigeria

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## Key words

Blood donation • Blood donors • Blood donation practices • Voluntary blood

## Summary

**Introduction.** Volunteer blood donors account for less than half of the blood supply in developing countries; and few countries have mobilized efforts to encourage voluntary blood donation (VBD). The objective of this study was to determine the knowledge and blood donation practices among adults in a state in Northern Nigeria.

**Methods.** Descriptive cross sectional study using multistage sampling technique was carried out among 936 respondents. Semi structured interviewer administered questionnaire was used to generate relevant data and information from the respondents. Data entry and analysis was done using EPI-info software package.

**Results.** The knowledge of the respondents on blood donation was low. Less than half 432 (46.2%) knew some indications for

blood transfusion. Two hundred and twelve (22.6%) respondents had donated blood in the past but only 1% of these were VBD while 95% were donations based on blood needs by family members, relations and friends. Few respondents 112 (12%) had received blood transfusion in the past, and the main source of blood transfused was paid commercial donors 50 (44.6%). The fear of HIV screening was a major hindrance and limitation to voluntary blood donation among respondents.

**Conclusion.** The gaps in knowledge & practice of VBD can be addressed through public awareness campaigns, and motivational programmes such as free medical services for voluntary blood donors.

## Introduction

Human blood is scarce, valuable and in high demand but availability of low-risk blood donors in Nigeria and many developing countries is a serious challenge and of public health concern. While the need for blood is universal, there is a major imbalance between developing and developed countries in the level of usage and access to safe blood. The practice of voluntary blood donation (VBD) is high in developed countries than developing countries. The World Health Organization (WHO) estimated that donation by 1% of a country population is the minimum blood required to meet a nation's most basic needs for blood [1]. However, less than 1% of the populations in many countries of the world most especially developing countries donate blood. In many countries less than 25% of their blood supplies were from voluntary unpaid blood donors which is adjudged the safest blood source [2].

Barriers to maintenance of adequate and safe blood supply in developing countries exist at all levels. These include infrastructure challenges such as problems with refrigeration and electricity needed to store donated blood, low funding for purchase of blood-banking equipments and test kits are inadequate. These barriers /challenges are obvious in countries with extreme poverty, political instability, and armed conflict [3].

The continuous and adequate supply of low risk, voluntary and non-remunerated blood donors is needed for high quality blood services worldwide. Identifying and targeting low risk volunteers for blood donations can be difficult in areas with high HIV prevalence especially in many developing countries. Currently, volunteer blood donors account for less than half of the blood supply in developing countries; and few countries have mobilized efforts to encourage voluntary blood donation [1]. In many countries, there are cultural attitudes that limit acceptance to blood donation activities, and governments and other institutions do little to counteract these attitudes.

The common sources of blood donations are voluntary unpaid donations, family/replacement donations and paid blood donations. Studies have indicated that donors who give blood voluntarily have the lowest prevalence of blood borne infections compared to people who donate for family members or in lieu of payment. WHO recommends that National blood transfusion services be based on non-remunerated volunteer blood donors [2]. Many countries are yet to implement this because of several challenges including pattern of utilization of blood and blood products, blood transfusions are most frequently used for paediatrics and obstetrics cases and inappropriate transfusion practice especially in developing countries. A report has shown that between 13% and 47% of all paediatrics transfusions are unnecessary [4].

Ensuring safe and adequate blood supply for the health system will require information on blood donation practices among different ethnic and socio-cultural diversity of the nation. This study was carried out to determine the knowledge and blood donation practices among the respondents in the study area. Findings will provide relevant and useful information for programme design to promote VBD practices in Nigeria.

## Materials and methods

The community based cross sectional survey was carried out in Kwara State, North Central Nigeria. The respondents were selected using multistage sampling technique. The State has 16 Local Government Areas (LGAs) out of which five were selected randomly by balloting. In the second stage, two wards were randomly selected in each of the five LGAs. One settlement was randomly chosen among the ten selected wards. All adult respondents aged 18 years and above in each household visited were interviewed after verbal informed consent was obtained.

The research tool was a pre-tested semi-structured questionnaire administered by trained research assistants who understood the local languages of different communities used for the study. The questionnaire contained questions that elicited information on knowledge and practice of blood donation. One thousand and seven respondents were contacted, but 936 consented and were interviewed giving a participatory rate of 93.6%. Information on the questionnaire were entered into a micro computer using EPI 2000 software package. Analyzed data were presented as frequency distribution tables.

## Results

The age of the respondents ranged between 18 and 71 years, with a mean age of  $28 \pm 3.2$  years. Majority of the respondents 630 (67.3%) were married, 487 (52.0%) were females and 572 (61.1%) had post secondary education. (Tab. I) The knowledge of respondents on indications for blood transfusion was low as evident by less than half 432 (46.2%) mentioned post partum haemorrhage, 341 (36.4%) said massive bleeding from traumatic injury, while 421 (44.9%) said individual undergoing major surgery. Contraindications to blood donation mentioned by the respondents included pregnancy 29 (3.1%), sickle cell disease 9 (1.0%), nursing mother 55 (5.9%), chronic illness 70 (7.5%) and people who are HIV positive 564 (60.3%) (Tab. II).

Less than a third of the total respondents 306 (32.7%) knew that a person can donate blood up to 3 times in a year. About half 482 (51.1%) believed that females cannot donate blood, while 645 (68.9%) felt that weight of a donor has nothing to do with blood donation. Most of the respondents 595 (89.5%) knew their blood groups

Tab. I. Socio-demographic characteristics of respondents.

Socio-demographic variable	Frequency (%)
<b>Age group (years)</b>	
≤ 20	62 (6.6)
21-30	401 (42.8)
31-40	258 (27.6)
41-50	172 (18.4)
51-60	34 (3.6)
> 60	9 (1.0)
Total	936 (100)
<b>Literacy level</b>	
Primary	64 (6.8)
Secondary	213 (22.8)
Post secondary	572 (61.1)
Quranic	58 (6.2)
None	29 (3.1)
Total	936 (100)
<b>Occupation</b>	
Civil servant	227 (24.3)
Farming	94 (10.1)
Housewife	25 (2.7)
Artisan	106 (10.3)
Trading	183 (19.5)
Self employed	301 (32.2)
Total	936 (100)

Tab. II. Knowledge of indications, benefits and contraindications blood donation.

(Multiple response N = 936)	
Variables	Frequency (%)
<b>Indications for blood transfusion</b>	
Malnutrition	54 (5.8)
Child delivery	432 (46.2)
Bleeding from injury	341 (36.4)
Fever/febrile illnesses	10 (1.1)
Major surgery	421 (44.9)
<b>Benefits of voluntary blood donation</b>	
Know blood group and Hb-genotype	184 (19.6)
Help reduce obesity	37 (3.9)
Spiritual satisfaction	135 (14.4)
Save life of blood recipient	595 (63.7)
Know HIV & other infection status of donor	184 (19.6)
<b>Contraindications to blood donation</b>	
Pregnancy	29 (3.1)
SS Hb-genotype	9 (1.0)
Old age	34 (3.6)
Nursing mother	55 (5.9)
Low blood pressure	68 (7.3)
Chronic disease	70 (7.5)
Positive for HIV	564 (60.3)
<b>Possible health problems of a blood donor</b>	
Anaemia	40 (4.2)
Cross infection	29 (3.0)
Dizziness/fainting attack	13 (1.4)
Sudden death	37 (3.9)

but only 7 (1.0%) had knowledge of their blood groups through community based blood group screening campaign.

The benefits of blood donations known to the respondents were: to save the life of the blood recipients 595 (63.6%) and opportunity for donors to know their blood group, HIV status and genotype 184 (19.6%). Some of the respondents felt that a blood donor can develop health problems such as dizziness/fainting attacks 13 (1.4%), anaemia 40 (4.2%), cross infections 29 (3.0%) and sudden deaths 37 (3.9%) (Tab. II).

Few respondents 112 (12.0%) had received blood transfusion in the past and the indications for the transfusion included surgery 58 (51.8%), febrile illness 27 (24.1%) and severe anaemia 18 (16.1%). The sources of blood received by ever transfused respondents were from commercial donors 50 (44.6%) and donation from family/relation 35 (31.3%) (Tab. III). Four hundred and six (43.4%) of the total respondents reported having had family members/relations who have had blood transfusion. The reasons for their transfusions were road traffic accident 153 (37.7%), child births 97 (23.9%) and febrile illnesses. The sources of blood for these relations included donation by friends 36 (8.9%), commercial donors 102 (25.1%) and donations by relations 114 (28.1%) (Tab. IV).

Less than one-quarter 212 (22.6%) of the respondents had ever donated blood. The circumstances leading to blood donation were relation in need of blood 126 (59.5%), blood required by friends 76 (35.8%) while only 10 (1.1%) were voluntary blood donation. Among the ever donated respondents, majority 92 (43.4%) donated once while few 19 (9.0%) donated up to 4 times in their life. Most of the ever donated respondents 175 (82.5%) had not donated blood in the past one year (Tab. VI).

One-third of the total respondents 311 (33.2%) knew about voluntary blood donation club, while 287 (30.7%) were willing to join the club. Only 55 (5.9%) respondents claimed to have VBD club in their locality. Most of the respondents 868 (92.7%) preferred government to private initiatives / campaign on VBD, however only few 112(12%) indicated willingness to go for VBD.

## Discussion

The age distribution of the respondents revealed that about half (49.4%) were less than 30 years. This observation is similar to the age stratification reported from the country population census results conducted in 2006 [5]. The young population structure in Nigeria provides a window of opportunity as youths can serve as change agents in blood donation drive. This study showed low level of knowledge on blood donation in the study population, and this finding is similar to a report of a study conducted in South Western Nigeria where 80% of the respondents had poor knowledge of blood donation [6]. The observed gap on knowledge of blood donation is an important factor affecting

Tab. III. History of Past blood transfusion among the respondents.

Blood Transfusion	Frequency (%)
<b>Ever had blood transfusion</b>	
No	824 (88.0)
Yes	112 (12.0)
Total	936 (100)
<b>Indication for blood among ever transfused</b>	
Anaemia	18 (16.1)
Surgery	58 (51.8)
Pregnancy / labour	9 (8.0)
Febrile illness	27 (24.1)
Total	112 (100)
<b>Source of blood transfused (N = 112)</b>	
Friends	19 (17.0)
Commercial donor	50 (44.6)
Relation	35 (31.3)
Voluntary donor	8 (7.1)

Tab. IV. Respondents' relations in need of blood.

Blood donation to relation	Frequency (%)
<b>Relations ever had blood transfusion</b>	
No	530 (56.6)
Yes	406 (43.4)
Total	936 (100)
<b>Indication for transfusion of relation</b>	
Road traffic injury	153 (37.7)
Child deliveries	97 (23.9)
Fever/febrile illness	57 (14.0)
Surgery	40 (9.9)
Chronic illness	59 (14.5)
Total	406 (100)
<b>Source of blood given to relation (N = 406)</b>	
Donation by respondents	147 (36.2)
Donation by other relations	114 (28.1)
Donation by Friends	36 (8.9)
Paid commercial donors	102 (25.1)
Voluntary donors	7 (1.7)

Tab. V. Blood donation practices of the respondents.

Blood donation practices	Frequency (%)
<b>Ever donated blood</b>	
No	724 (77.4)
Yes	212 (22.6)
Total	936 (100)
<b>Circumstances leading to blood donation</b>	
Voluntary donation	10 (4.7)
Relation needed blood	126 (59.5)
Friends needed blood	76 (35.8)
Total	212 (100)
<b>Number of times respondents have donated</b>	
Four	19 (9.0)
Three	20 (9.4)
Two	81 (38.2)
Once	92 (43.4)
Total	212 (100)
<b>Last time respondents donated blood</b>	
< 1 year ago	37 (17.5)
1-2 years ago	92 (43.3)
3-4 years ago	20 (9.4)
≥ 5 years ago	63 (29.7)
Total	212 (100)

blood donation practices in Nigeria. Improved sensitization and provision of appropriate information on blood donation practices can lead to positive attitudinal change; and may provide opportunity for informed decision on voluntary blood donation among the general public.

Less than half of the respondents (46.2%) knew some indications for blood transfusion. This may be due to ineffective programme towards promoting voluntary blood donation. Ordinarily, people are not willing to part with their blood; however, with adequate awareness creation and community involvement in VBD campaigns the myths and reluctance associated with blood donation can be reduced. The challenge of using paid blood donors as against volunteer donors may continue unless individuals, families and communities have positive attitudinal change to blood donation [7, 8].

Blood donors may develop associated signs & symptoms such as transient dizziness, fainting attacks, anaemia and cross infections as mentioned by some respondents. However, these side effects rarely occur in voluntary non-remunerated donors compared to paid donors who are known to have highest risk and prevalence of HIV, hepatitis and other blood transmitted infections [9, 10].

The fact that 12% of the respondents in this study have had blood transfusion in the past showed that the needs for blood and blood products in our hospitals are high. It is imperative to mobilize resources to promote & strengthen voluntary non-remunerated blood donations. The main sources of blood received by ever transfused respondents were commercial donors (44.6%) and donations by family members / relations (31.3%). This is similar to findings in India where voluntary blood donation is not well established and as such replacement method of donation is employed to ensure blood availability for the needy [8].

Among ever transfused respondents only 7.1% of the blood transfused was through voluntary non-remunerated donations. Similarly, respondents with history of blood transfusion among their family members/relations less than 2% of the blood were from unpaid voluntary donors. This is a reflection of the challenges ahead if blood requirements of the population are to be met. Unless immediate and aggressive actions and

interventions are taken, paid donor or replacement method which is associated with blood transmitted infections will continue to be a major source of blood supply in the country.

Frequency and regularity of blood donations in this study was low. This is consistent with results of a global study on retention of blood donors which revealed that up to 80% of first time donors stopped blood donation subsequently [10]. Similarly, study conducted in Ahmadu Bello University Teaching Hospital in Northern Nigeria corroborated the findings in this study where it was reported that 92% of blood donors were males and many of them were commercial donors [11]. Therefore, efforts, strategies and interventions to retain donors to become voluntary and regular blood donors should be a priority and focus of National Blood Transfusion Institute if safe and adequate blood supply to the national health system is to be guaranteed.

To address the problem of paid blood donors and increase non remunerated volunteer donors, community members, government and non-governmental organization need to adopt aggressive awareness campaigns, sensitization and mobilization using all methods appropriate to various settlements /communities. This will correct misconception about VBD and other socio-cultural reasons that influence the decision to donate blood. It has been documented in some parts of Nigeria and Tanzania that people are willing to donate blood voluntarily following introduction of incentives [12, 13].

## Conclusion

There is gap in knowledge of blood donation and the practice of voluntary blood donation is low while paid donors still constitute important source of blood supply. There is need to encourage and motivate people on VBD through provision of free medical service to voluntary donors. Also, blood donation services should be accessible at the community level. Community sensitization together with educational campaigns, paid blood donation should be essentially abandoned.

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