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Knowledge, attitude and practice of voluntary blood donation among physicians in a tertiary health facility of a developing country

Nwogoh Benedict, Aigberadion Usimenahon, Nwannadi Ikenna Alexander, Aigbe Isi

ABSTRACT

Aims: The objectives of this study were to assess the knowledge, attitude and practice of voluntary blood donation among physician, to identify and recruit potential voluntary blood donors amongst them and to determine the association between blood donation and gender, duration of practice and sub-specialty of the physicians. Methods: This was a cross sectional qualitative study carried out at the University of Benin Teaching Hospital, Benin City. Pre-tested questionnaires were administered to 140 physicians in the tertiary health facility. Results: Most of the respondents (95.7%) were aware of the risk of transmission of infection by transfusion. The risk of transmission of HIV, HBV, HCV and syphilis was affirmed by 99.3%, 97.9%, 73.6% and 42.9% respectively. Fifty-eight (41.4%) physicians have donated blood in the past, with 33 (56.9%) donating less than once a year, 18 (31%) between 1–3 times a year and five (8.6%) more than thrice a year. Most (53.4%) donated voluntarily, 39.7% donated for friends and relatives, 3.4% for remuneration and 5.2% donated in order to know their HIV, HBV and HCV status. There was no significant association between gender, duration of medical practice, specialty of the physicians and the practice of blood donation as P values were 0.227, 0.613 and 0.844 respectively. Conclusion: Physicians have good knowledge of voluntary donation and a positive attitude towards donation but there were disparities in their practice of blood donation.

Keywords: Blood donation, Physicians, Developing country

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INTRODUCTION

Blood is a scarce; its demand far outweighs its supply. There is shortage of active blood donors to meet the increased demands of blood [1], in addition to limited supply, the safety especially with regard to the risk of transfusion transmissible infection is also an issue of utmost concern especially in the developing countries. Donor blood procurement from voluntary non-remunerated donor has been adjudged the safest source of blood. Hence the World Health Organization (WHO) has adopted a policy aimed at 100% voluntary

non-remunerated donor blood procurement by the year 2020 [2].

Precisely aimed promotion and information, targeted motivation and selection of non-remunerated, healthy volunteer repeat donors form the foundation of safe blood products supply in highly developed countries [3]. In most developing and transitional countries, by contrast, family replacement and paid blood donors are still the significant source of blood components for transfusion [4].

The constant concern in the efforts to meet the demands for blood is the fact that only a small percentage of the eligible population actually chooses to donate blood on a regular basis and that a significant percentage of eligible donors are deferred temporarily or permanently because of strict deferral criteria being continuously added in the name of blood safety [5]. At the same time, the demand for blood and blood products in most countries continues to increase because of the rise in human life expectancy and the implementation of new and aggressive surgical and therapeutic methods requiring large quantities of blood and blood products [6].

Physicians by virtue of their training and medical practices are expected to be highly informed on the processes of donor blood procurement and the challenges of supply as well as the potential hazards of transfusion. They also constitute a potential pool of eligible but yet under explored donors. The objectives of this study were to assess the knowledge, attitude and practice of voluntary blood donation among physicians, to identify and recruit potential voluntary blood donors amongst them and to determine the association between blood donation and gender, duration of practice and sub specialty of the physicians.

MATERIALS AND METHODS

This was a cross sectional qualitative study conducted at the University of Benin Teaching Hospital (UBTH) as part of the 2011 World Blood Donor Day Programme. The Hospital is a major referral and training center for both undergraduate and postgraduate doctors in various specialties and a research institute in South Nigeria. It has over 600 physicians, the bulk of which comprised house officers and resident doctors undergoing postgraduate training. The center operates a hospital-based blood banking system which is highly dependent on blood procurement from vendors who operate paid donor outlets. Their supplies are augmented by supply from National Blood Transfusion Service (NBTS), family replacement and very few voluntary donors. Pre-tested questionnaire were self administered to 140 physicians from various clinical sub specialties. Informed written consent was obtained from all participants.

The responses were collated and analyzed with the Statistical Package for Social Sciences (SPSS) 16. The results were presented in frequency tables. The association between blood donation practice and gender of respondents, duration of practice and specialty of the responding physicians were tested using Chi-square and Fisher's test where appropriate. P-values < 0.05 were considered statistically significant.

RESULTS

There were 140 respondents in the age range of 25–52 years (median age was 32 years) with M:F ratio of 3:1. Eighty two (58%) were married while 56 (40%) were single. Most (82.1% of respondents) were resident doctors in various specialties of training. Majority of the physicians have been practicing in the facility for 1–5 years. Physicians from 11 departments including Dentistry (10.7%), Surgery (7.1%), Internal medicine (15%), Obstetrics and Gynaecology (10%), Family medicine (6.4%), Anaesthesia (17.9%), Psychiatry (2.9%), Paediatrics (3.6%), Community medicine (1.4%), Pathology (10.7%) and Accident and Emergency (4.3%) responded. Most of the respondents were Christians (93.6%). Table 1 shows the details of the demographics of respondent.

The respondents expressed good knowledge of the common blood group types and of their own blood groups. The blood groups of respondent were A Rhesus (Rh) negative (1.4%), A Rh positive (13.6%), AB Rh positive (3.6%), B Rh negative (0.7%), O Rh negative (3.8%) and O Rh positive (34.3%). Forty-six (32.9%) did not respond to question on knowledge of their blood group (Table 2).

Most respondent (95.7%) were aware of the risk of transmission of infection by transfusion. The risk of transmission of HIV, HBV, HCV and syphilis was affirmed by 99.3%, 97.9%, 73.6% and 42.9% respectively while 19.3% and 2.9% affirmed those of malaria and CMV respectively. Thirty-five percent stated that the minimum donation frequency was six months, 35.7% three monthly, 11.4% monthly while 9.3% had no knowledge of this. Eight percent and 3.6% stated that people should not donate for religious and cultural beliefs respectively. On knowledge of volume of blood collected at each donation, 60.7% stated less than 500 ml, 34.3% ticked 500–1000 ml while 21.4% express no knowledge of it. Table 3 shows the details of the knowledge of blood donation expressed by respondents.

A hundred and twenty five (89.3%) respondents said blood donation was good. Voluntary donation was accepted as the best source of donor blood by 80.7%, replacement donors by 7.1%, remunerated by 0.7% and self donation by 2.1%. One hundred and seventeen (83.6%) said something can happen to a donor, 11.1%, 92.3% and 7.6% stated that a donor might contract infection, become temporarily weak and suffer loss of health respectively.

Fifty-eight (41.4%) physicians had donated blood in the past with 33 (56.9%) of them donating less than once a year, 18 (31%) between 1–3 times a year and 5 (8.6%) more than thrice a year. Most (53.4%) donated voluntarily, 39.7% donated for friends and relatives, 3.4% for remuneration and 5.2% to know their HIV,

Table 1: Sociodemographic Parameters of Respondents.

Parameter	N = 140	Percentage (%)
Age Range (median age)	**25–52 (32) years**	
Gender		
Males	102	72.9
Females	33	23.6
No Response	5	3.6
Marital Status		
Single	56	40.0
Married	82	58.6
No Response	2	1.4
Professional Status		
House Officers	18	12.9
Residents	115	82.1
Medical Officers	4	2.9
Duration of Practice in the facility		
< 1 year	27	19.3
1– 5 years	85	60.7
>5 years	26	18.6
No response	2	1.4
Specialty		
Dentistry	15	10.7
Surgery	10	7.1
Obstetrics and Gynaecology	14	10
Family Medicine	9	6.4
Anaesthesia	25	17.9
Psychiatry	4	2.9
Paediatrics	5	3.6
Community Medicine	2	1.4
Pathology	15	10.7
Accident and Emergency	6	4.3
No Response	14	10.0
Religion		
Christianity	131	93.6
Moslem	1	0.7
Traditionalist	1	0.7
No Response	7	5.0
Total	140	100

HBV and HCV status. Eighty (57.1%) accepted to be reminded or called upon to donate but only 40% of them left their contacts.

Table 2: Summary of Blood Group of Respondents.

Blood Group	N (%)
A	21 (22.8)
B	13 (14.1)
AB	5 (5.4)
O	53 (57.6)
Rhesus D Positive	84 (91.3)
Rhesus Negative	8 (8.7)

Eighty-two (58.6%) had never donated blood. Reasons for non donation varied. Twenty-six (31.7%) said they were not approached to donate, 18 (22%) said they may need to donate for friends or relatives in the future, 14 (17.1%) said they were not fit to donate, 10 (12.2%) were afraid of needles, 4 (2.9%) said that their blood may be sold by the blood bank, 2 (2.4%) were scared of knowing their HIV status. One hundred and twenty seven (90.7%) thought that patient relatives should be encouraged to donate while 126 (90%) actually encouraged relatives to donate. Table 4 Section B shows details of blood donation practices among physicians.

There was no significant association between donation practices and gender, duration of practice in the facility and specialty of physicians as P values were 0.227, 0.613 and 0.844 respectively (Tables 5, 6).

DISCUSSION

There are limited studies on voluntary blood donation practices among physicians. By training physicians, were taught and are continually exposed to current articles on transfusion practices. They are the ones who request, utilize and manage problems arising from use of blood and blood products. The extent these knowledge influence their practice of blood donation is yet to be fully ascertained. All respondents were within the eligible age group for blood donation hence they constituted a pool of potential donors [7]. The blood group ABO and Rhesus phenotypic patterns of respondent were similar to reports of previous work done in the geographic location [8]. Blood group O was the commonest (57.6%) while AB was the least (5.4%). The frequency of Rh D negative phenotype was 8.7% similar to the findings by Enosolease et al. [8]. As expected the respondents displayed a high knowledge with regard to common blood groups, common transfusion transmissible infections though less than average recognized syphilis, CMV and other rare infectious agent as transmissible by blood. This may be attributed to a decline in the screening for syphilis by local blood banks and non-inclusion of malaria and CMV screening for donors. Effects of culture and

Table 3: Knowledge on blood donation.

Section A: Knowledge of blood groups		**Section B: Knowledge of blood donation**	
Do you know the common blood groups?		Who should donate blood?	
Yes	138 (98.6%)	Men	136 (97.1%)
No	1 (0.7%)	Women	125 (89.3%)
No Response	1 (0.7%)	Young (<18 years)	8 (5.7%)
Do you know your blood group?		Old (>60 years)	5 (3.6%)
Yes	139 (99.3%)	Vulnerable group	11 (7.9%)
No Response	1 (0.7%)	Healthy	102 (72.9%)
Blood group of Respondent?		Diseased	1 (0.7%)
A Negative	2 (1.4%)	Who should not donate blood?	
A Positive	19 (13.6%)	Men	6 (4.3%)
AB Positive	5 (3.6%)	Woman	8 (5.7%)
B Negative	1 (0.7%)	Young (<18 years)	61 (43.6%)
B Positive	12 (8.6%)	Old (>60 years)	92 (65.7%)
O Negative	5 (3.8%)	Vulnerable group	106 (75.7%)
O Positive	48 (34.3%)	Healthy	4 (2.9%)
Invalid	2 (1.4%)	Diseased	97 (69.3%)
No Response	46 (32.9%)	Culture belief	5 (3.6%)
Can a person be infected by receiving blood transfusion?		Religious belief	11 (7.9%)
Yes	134 (95.7%)	No Response	2 (1.4%)
No	5 (3.6%)	What volume of blood is collected during each donation?	
No Response	1 (0.7%)	≤500mls	85 (60.7%)
What diseases are transmissible by blood transfusion?		500–1000mls	48 (34.3%)
HIV	139 (99.3%)	Don't know	30 (21.4%)
HBV	137 (97.9%)	Invalid	1 (0.7%)
HCV	103 (73.6%)	No Response	2 (1.4%)
Syphilis	60 (42.9%)		
Malaria	27 (19.3%)	What is the duration of a donation process?	
CMV	4 (2.9%)	<20 minutes	42 (30%)
Others	3 (2.1%)	20–60 minutes	67 (47.9%)
How often can an individual donate?		Don't know	30 (21.4%)
Weekly	5 (3.6%)	No Response	1 (0.7%)
Monthly	16 (11.4%)		
3 Monthly	50 (35.7%)		
6 Monthly	49 (35%)		
Annually	2 (1.4%)		
Don't know	13 (9.3%)		
Invalid	1 (0.7%)		
No Response	4 (2.9%)		

Table 4: Attitude and Practice of Blood Donation.

Section A: Attitude towards blood donation		**Section B: Practice of blood donation**	
What do think about blood donation?	N (%)	Have you donated before?	N (%)
Good	125 (89.3)	Yes	58 (41.4)
Bad	2 (1.4)	No	82 (58.6)
Neutral	10 (7.1)		
No Response	3 (2.1)	How often do you donate?	
		<1 time a year	33 (56.9)
What do you think is the best source of donor blood?		1–3 times a year	18 (31.0)
		>3 times a year	5 (8.6)
Voluntary donor	113 (80.7)	No response	2 (3.4)
Replacement donor	10 (7.1)		
Remunerated donor	1 (0.7)	Why did you donate?	
Self donor	3 (2.1)	A friend or relative needed blood	23 (39.7)
Invalid	11 (7.9)	Voluntary	31 (53.4)
No Response	2 (1.4)	Remuneration	2 (3.4)
		To know my screening status	3 (5.2)
Can something happen to a blood donor during or after donation?		Will you donate if called upon or reminded to do so?	
Yes	117 (83.6)	Yes	80 (57.1)
No	14 (10)	No	35 (25.0)
I don't know	7 (5.0)	No Response	25 (17.9)
No Response	2 (1.4)	Number of those who stated their contact	32 (40.0)
What can happen to a blood donor during or after donation?		Reasons for non donation by non-donors	
Contract Infection	13 (11.1)	Not approached to donate	26 (31.7)
Temporary Weakness	108 (92.3)	Unfit to donate	14 (17.1)
Fall Sick	9 (7.7)	Need to donate for friends or relatives in future	18 (22)
Should patient relatives be asked to donate?		Need to donate for friends or relatives in future	18 (22)
		Fear of needles	10(12.2)
Should patient relatives be asked to donate?		Fear of knowing my status	2 (2.4)
Yes	127 (90.7)	No Response	17 (20.7)
No	5 (3.6)		
No Response	7 (5.0)	Do you encourage relatives to donate?	
		Yes	126 (90.0)
		No	8 (5.7)
		No Response	6 (4.3)

Table 5: The association between gender and blood donation.

Gender	Donors (%)	Non-donors (%)	Total
Males	43 (42.15)	59 (57.84)	102
Females	10 (30.30)	23 (69.69)	33
Total	53 (39.25)	82 (60.74)	135

χ^2= 0.114, p = 0.227

Table 6: The association between duration of medical practice and blood donation.

Duration of MedicalPractice	Donors (%)	Non-donors (%)	Total
<1 years	10 (37.037)	17 (62.96)	27
1–5 years	35 (41.17)	50 (58.82)	85
>5 years	13 (50)	13 (50)	26
Total	58 (42.028)	80 (57.97)	138

χ^2= 0.980, p = 0.613

religion were recognized as limitations to blood donation. Some Christian sects still object strongly to blood and blood product usage despite the absence of a perfect substitute. There was limited knowledge on frequency of donation and duration of a donation process. This may be due to the fact that less than 50% have donated blood.

Physicians usually request for blood and blood components for their patients and it is expected that they should be conversant with the challenges of blood procurement. Hence it is surprising therefore that "not being approached for blood donation" is the commonest reason for non-donation.

A study from the Blood Centre of Umea University Hospital in Sweden showed that among the motives for donating blood, healthcare occupation represented only 7.7% of the donors [9]. Misje et al. [10] from the Blood Bank of Oslo, Norway, found that 12.4% of their donors worked in health and social sciences, a percentage smaller than that of the total work force (17.6%). These authors expressed surprise that healthcare professionals were under-represented.

In a similar study conducted in an academic based hospital in Virginia USA, of 687 survey respondents, only 21 (3.1%) were physicians [11]. The returning physician donors (16) came back a median of 12 months after a prior donation, a lapse nine months longer than for all returning donors (median three months). One-third (33.3%) of the Physician donors presented as walk-in donors, two times that of the total survey respondents (16.2%) in the Virginia study.

Gilani et al. [12] in a comparative study on blood donation by medical and paramedical workers reported 49.2% of doctors as donors and only 3.4% of these are regular donors.

In this study, we recorded 41.4% blood donation by physicians, 39.6% of them were regular donors and 53.4% of these were voluntary. While eighty (57.1%) accepted to be recruited and reminded to donate only 40% of them wrote their contacts. This was a far cry from the knowledge and attitude indicated by the questionnaire. Voluntary blood donation among physicians though low generally, doctors in this study performed higher than their colleagues in the developed countries as documented in the studies by Gilani et al. [12] and Willams et al. [11]. There is need to properly harness this potential pool of donors if the drive for 100% voluntary donor targeted by the WHO will be achieved. For a sustainable blood banking system aimed at providing adequate and safe blood to all in need, a proper sensitization, and massive donor recruitment from all potential donors must be implemented.

CONCLUSION

Physicians in the study centre have good knowledge of voluntary donation and a positive attitude towards donation but there were disparities in their practices of blood donation.

RECOMMENDATION

There is need to engage in a goal-oriented sensitization campaign to motivate, recruit and retain potential donors, physicians inclusive if any head way towards safe and adequate blood and blood product supply will be achieved.

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Author Contributions

Nwogoh Benedict – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Aigberadion Usimenahon – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Nwannadi Ikenna Alexander – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Aigbe Isi – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

REFERENCES

1. Gillespie TW, Hillyer CD. Blood donors and factors impacting the blood donation decision. Transfusion Medicine Reviews 2002;16:115–30.
2. Blood safety and donation: fact sheet No. 279. 2008. Jun, Available from: http://www.who.int/mediacentre/factsheets/fs279/en/.
3. Erhard Seifried, Markus M. Mueller. The Present and the Future of Transfusion Medicine. Blood Transfus Reviews 2011.0097–10.
4. Enosolease ME, Imarengiaye CO, Awodu OA. Donor blood procurement and utilization at the University of Benin Teaching Hospital, Benin City. Afr J Reprod Health 2004;8:59–63.
5. http://www.wpro.who.int/mediacentre/factsheets/fs20040610.htm
6. Riley W, Schwei M, McCullough J. The United States potential blood donor pool: estimating the prevalence of donor-exclusion factors on the pool of potential donors. Transfusion 2007;47:1180–8.
7. Widmann FK. Standards for Blood Bank and Transfusion Services. 15th ed. Bethesda (MD): American Association of Blood banks 1993.
8. Enoselease ME, Bazuaye GN. Distribution of ABO and Rh-D blood groups in the Benin area of Niger-Delta: Implication for regional blood transfusion. Asian J Transfus Sci 2008;2(1):3–5.
9. Sojka BN, Sojka P. The blood donation experience: self-reported motives and obstacles for donating blood. Vox Sang 2008;94:56–3.
10. Misje AH, Bosnes V, Gasdal O, Heier HE. Motivation, recruitment and retention of voluntary non-remunerated blood donors: a survey-based questionnaire study. Vox Sang 2005;89:236–44.
11. William AK, Susanne J, Gay W. An academic-based hospital donor site: Do Physicians Donate Blood? Annals of Clinical & Laboratory Science 2009;39:339–44.
12. Gilani I, Kayani ZA, Atique M. Knowledge, attitude and practices regarding blood donation prevalent in medical and paramedical personnel. J Coll Physicians Surg Pak. 2007;17(8):473–6.