

Original Research Article

Assessment of Physicians' Motivation, Willingness and Opinion on Blood Donation

Abstract

Introduction: As the world battles to combat the spread of COVID-19, there is need to ensure the availability of blood and blood products for the population of sick individuals who need them. Doctors and other health workers are often faced with the challenge of providing safe blood for their patients.

Aims and Objectives: To assess physicians' motivation, willingness and opinion regarding blood donation in Nigeria and identify incentives and deterrents to blood donation.

Materials and method: A web-based cross sectional survey was conducted from June to December 2020 among physicians practicing in Nigeria. The real-time questionnaire responses were downloaded in multiple formats using 'excel' and was then analyzed using the Statistical Package for Social Sciences (SPSS version 20).

Results: Out of the 1153 participants, 730(63.3%) were males, and mean age was 40.1 ± 8.11 years. Two-thirds (67.2%) knew that safest blood donors were the voluntary non-remunerated donors (VNRD). A total of 615 (53.3%) had donated blood at least once in their life time. Two thirds of those who donated were males 75% (462/615). Males were significantly more likely to donate blood than females (462/730, 63.3% vs 153/423, 36.2%; OR = 3.04; CI = 2.4-3.9; $p < 0.0001$). Seventy-eight percent (78%) were willing to donate blood regularly. The commonest reason for blood donation (among previous donors) was altruism (72.2%) while the commonest reason for not donating blood (among non -previous donors) was because no one reminded them to donate blood (54.7%). Incentives that will improve blood donation frequency were reported thus: given a day off (54.3%); certificates and badges (41.5%) and money (4.2%).

Conclusion: Physicians are willing to donate blood voluntarily but less than two thirds were regular blood donors. Concerted efforts at ‘regularly’ reminding physicians to donate blood could improve their blood donation practices.

Keywords: Altruism, Blood donor, Deterrents, Incentives, Physician, Voluntary donor

Introduction

Blood donation should be altruistic and voluntary. In most high income countries of the world, voluntary non remunerated blood donation (VNRD) is the norm. These countries collect 40% of the global blood donations. The blood donation rate is 35.1% per 1000 persons in the high income countries compared to 6.8/1000 in low and middle income countries (LMIC).^[1] Only 38% of the estimated 80,000,000 units of blood donated globally is by the developing countries with about 80% of world population.^[2]

Those undergoing treatment for cancer, those undergoing major surgeries, trauma victims, children with severe malaria and sickle cell anemia patients are in need of blood transfusion.^[3,4] In the LMIC such as Nigeria, there is scarcity of blood donors and hence unavailability of blood for use.^[5-7] In this era of COVID-19, this scarcity has doubled or tripled in many blood transfusion centers both in the high income and LMIC countries. The regular donors have genuine fears of contracting the virus from donation centers and are afraid to visit the donation centers. In addition, possible contacts by donors with COVID-19 patients has increased the number of blood donors on self-deferral. There are recorded drop in the number of blood donations from many centers as a result of social distancing and lockdown instituted as a means of preventing the spread of coronaviruses.^[8-12] However, Ogar et al in their study in Calabar, Nigeria, found no significant change in the availability of blood donors in their facility. This was because there was a reduction in the demand for blood and in number of blood donors within the period of lockdown.^[13]

There is increasing need for blood and blood products across the world. In Nigeria, only four out of a thousand healthy persons is a voluntary blood donor ^[14] Furthermore, since the physicians make up a population of blood donors that are often not targeted, assessment of their opinion, willingness and

motivations towards blood donation will help design a functional programme to ensure sustainable availability of safe blood in our various hospitals.

Materials and Methods

4.1. Study Area/Time

A web-based cross sectional survey was conducted from June to December 2020 among physicians practicing in Nigeria. Google documents were used as a platform to create online questionnaires. Participants' responses were secured using a "Cloud" database where the data was automatically sorted, scaled and scored by custom Excel formulas. The real-time questionnaire responses were downloaded in multiple formats using 'excel' which was then analyzed using the Statistical Package for Social Sciences (SPSS Inc., Chicago, Illinois, USA)).

4.2. Study Subjects

All cadres of doctors practicing in Nigeria were included in this study.

4.3. Study Design

This is a cross-sectional, descriptive study.

4.6. Data Collection Tool

A self-created questionnaire was used for data collection. The questionnaire was validated by two consultants in transfusion medicine expert in research methodology. It included questions covering 5 areas: demographic data, knowledge "9 questions, practice "5 questions," reasons for not donating, and motivation for donation.

4.8. Data Analysis

Analysis of the data was done using the statistical package for social sciences (SPSS) version 21(IBM Chicago IL,USA). Descriptive analyses of frequencies were done for all variables. Relationships where applicable were expressed using odd ratios (ORs) and 95% confidence intervals. A p value < 0.05 was considered statistically significant.

4.9. Ethical Considerations

Ethical clearance for this study was obtained from the University of Nigeria Teaching hospital research ethics Committee. Participants were anonymized and gave consent to this study.

5.0 Results

5.1 Demographic characteristics: The study included 1153 participants from the six geographical regions in Nigeria. Majority of the participants, 571 (49.5%), were in the 41-50 age range with a mean age of 40.1 ± 8.1 years. Male to female ratio was 1.7:1. The demographic characteristics are as shown in Table 1.

Almost all the doctors 1145 (99.3%) knew their blood group type (Table 2) while only 67.2% knew that VNRD is the safest blood donor type. About 333 (28.9%) of physicians encouraged blood donation from close relatives and this is a fairly common practice in 30.3% of them. The full details on the knowledge about blood donation is shown in Table 3.

A little less than one-third were indifferent about whether blood donors should be remunerated or not. A little more than one-third of the doctors, 427 (37%) disagreed with the notion that blood donors should be paid. Details are in Table 3.

5.2 Practice of blood donation (see Table 4)

About half of the participants 615 (53.3%) have donated blood at least once in their life time but 69.9% of them were not regular blood donors. Two thirds of those who donated were males 75% (462/615). Males were significantly more likely to donate blood than females (462/730, 63.3% vs 153/423, 36.2%; OR = 3.04; CI = 2.4-3.9; $p < 0.0001$). Those who have worked for less than 15 years were significantly less

likely to donate blood (419/840.49% vs 196/313, 62.6%; χ^2 :14.36; $p<0.001$). More than half (72. 2%) of those that donated blood before were done voluntarily. When the reasons for donating blood were asked, 26% reported that they donated for their friends and relations in need of blood donation, 17.9% donated for their patients who needed blood transfusion while 2.4% donated because their haemoglobin level was high. Only 21.46% of the physicians that had donated blood did so in the last one year. Eighty-seven (14.1%) donated blood once yearly while more than half of those with history of blood donation, 426(69.2%) donated blood only when the need arose. The full details are in figure 1.

5.3 Motivation to blood donation

Most of the participants (78%) reported that they were willing to donate blood while 16.6% were not sure of their willingness to donate blood. Males were more willing to donate blood 577/730 (79%) than women 298/423 (70.4%). This difference is statistically significant ($X^2=13.56$; $df=2$; $p<0.001$)

When asked whether they will be motivated to donate when paid money, 13.2% said yes, 11.6% were not sure while majority 75.2% said 'no'. When asked whether they will be willing to donate when issued certificates and badges, 25.2% said yes, 19.5% were not sure while majority 55.3% said 'no'.

Incentives that will improve blood donation frequency were reported thus: given a day off 54.3%; certificates and badges 41.5% and money 4.2%

5.5 Deterrents to blood donation

These include (multiple reasons were given): no reminders 294/538 (54.7%), low haemoglobin level 84/538 (15.6%), fear of the needle 107/538 (20%), fears that the blood they donated would be sold 62/538 (11.6%) and not wanting to know their HIV status 23/538 (4.2%), unfriendly attitude of the blood bank staff 256/538 (47.5%), uncomfortable bleeding couches room 23/538 (4.2%) and lack of incentives 94 (17.4%).

Discussion

This study shows that physicians in Nigeria form a potential pool of blood donors that can be harnessed and maintained on a regular basis. More than half of the doctors 615 (53.3%), have donated blood at least once in their life time. A lower rate of blood donation practice 47.8% and 33.2% were reported by Tadesse et al and Arage et al respectively.^[15,16] This difference may be because their study population were health professionals which included all cadres of staff working in the hospital. These health professionals may not have been in direct contact with patients like the physicians and this may have affected their motivation towards blood donation. We also found that only 21.5% of the physicians, donated blood in the last one year. This is lower than 56.9% found by Nwogoh et al in Benin City Nigeria.^[17]

Almost all of the physicians knew their blood group (99.3%). This finding is similar to the finding by Nwogoh et al.^[17] This did not come as a surprise since doctors were required to run medical examinations prior to employment. About 67.2% correctly answered that VNRD was the best type of blood donors to be used in the blood centers as against 80.7% from Nwogoh et al.^[17] This difference could be because doctors who were not in tertiary centers where academic discussions are routinely done were included.

One- third of the physicians did not know that the practice of transfusing blood from first degree relatives was harmful and could be fatal.^[18,19] This is a worrisome finding since physicians were the ones that prescribe and administer blood and blood products to their patients. The risk of transfusion associated graft versus host disease can be prevented by avoiding transfusion from first degree relatives.

Male doctors were found to be more likely to donate blood than females. This is corroborated by several studies.^[20-23] World Health Organization in 2020 noted that less than 10% of blood donors were women.^[24] The higher incidence of iron deficiency anaemia in women due to childbearing is the main reason for deferrals.^[25] On the contrary, female participation in blood donation is noted to be higher in some European countries.^[26] Women were also found from previous studies to be more motivated to donate blood than the men, even though the women had more deferrals and the men have higher number of repeat blood donation.^[25] From our study, more men 577/730(79%) were more willing to donate blood than women 298/423 (70.4%).

A good number of physicians donated voluntarily. This is similar to findings of Gilani et al^[27] who noted that 49.3% of blood donations by doctors were on voluntary basis. This may be because doctors were more knowledgeable about use of blood and safety of blood transfusion due to their medical education.^[28]

‘No one reminded me’ was given as a reason for not donating blood by 59.7% of doctors. This finding is in keeping with Gilani et al where 63.3% of paramedics noted that “no one called them to donate blood”.^[27] Hence, education of potential blood donors and increased awareness for blood donation should be a strategy done regularly to increase the donation pool. On the contrary, fear was the commonest reason for failure to donate blood according to Muthivhi et al.^[29] It arose from superstitious beliefs or myths concerning blood donation.^[30,31]

Most physicians did not want any incentives after blood donation. However, 37.0%, opined that blood donors should be paid for donating blood. The debate on cash payment has been on-going for decades. There are regulations against paid donations by international bodies such as world Health Organization, International Society of blood transfusion and the European Union.^[32-35]

Incentives that will improve blood donation frequency were: given a day off duty 54.3%; certificates and badges 41.5% and money 4.2%. This may serve as a wedge between paid donations and altruistic blood

donations. The use of gift items, tokens and days off work may way be the panacea for increasing the donor pool and should be exploited^[36,37]

In view of the willingness of physicians to donate voluntarily, there should be organized way to harness and retain many of them as regular blood donors. This could be done by regular awareness programs, adequate sensitization and sending of reminders.

Recommendation: These doctors are knowledgeable and have right attitude towards blood donation. The doctors will also play a role in dissipating misinformation, myths and superstitious beliefs surrounding blood donation. Education, public awareness campaigns and elucidation of many myths surrounding blood donation should be initiated. The donation centers should on their own reach out to the regular blood donors by telephone and schedule appointments for blood donation

Limitations of the study: Majority of responses came from tertiary hospitals and also from the Consultant cadre. This may have affected the findings of this work. This is important since this category of doctors are in the upper echelon of the profession and thus are expected to be more knowledgeable.

Conclusion: Physicians are willing to donate blood voluntarily but less than two thirds had ever donated blood. Concerted efforts at regularly reminding physicians to donate blood could improve their blood donation practices. It is also important to create awareness among clinicians as well as the patients' relatives about complications of receiving blood donation from the first-degree relatives.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use

these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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Tables

Table 1: Sociodemographic characteristics of the participants

Age range	N(%)	Total
20-30	5(0.4%)	1153
31-40	398(34.5%)	
41-50	571(49.5%)	
51-60	158(13.7%)	
61- 70	21(1.8%)	
Sex		
Male	730(63.3%)	1153
Female	423(36.7%)	
Marital Status		
Single	241(20.9%)	1153
Married	894 (76.7%)	
Separated	18 (1.6%)	
Widow	9 (0.8%)	
Hospital		
Tertiary	1056 (91.6%)	1153
Secondary	82(7.1%)	
Primary	0	
Private	15(1.3%)	
Designation		
House officer	179 (15,5)	1153
Medical officer	57 (4.9%)	
Registrar	96 (8.4%)	
Senior Registrar	204 (17.7%)	
Consultant	617 (53.5%)	
Number of years of practice		
<5	194 (16.8%)	1153
6-10	295 (25.6%)	
11-15	351 (30.4%)	
16-20	129 (11.2%)	
>20	184 (16%)	

Table 2: Blood group of participants

Blood group	Male (n=730)	Females (n=423)
O positive	424 (58.1%)	238 (56.3%)
O negative	14 (1.9%)	30 (7.0%)
A positive	115 (15.7%)	95 (22.5%)
A Negative	14 (1.9%)	6 (1.4%)
B positive	117 (16.2%)	48 (11.4%)
B negative	10 (1.4%)	0
AB positive	20 (2.8%)	6 (1.4%)
AB negative	8 (1.0%)	0
Do not know	8 (1.0%)	0

Table 3: Physicians knowledge of blood donation (N=1153)

Items	Strongly agree	Agree	Indifferent	Disagree	Strongly disagree
Blood donors					
Should be paid	6.2%	20.9%	20.2%	37.9%	14.7%
Blood donation from					
Relations is safe	27.9%	26.5%	8.5%	27.9%	6.2%
How often do you transfuse blood from close relatives?					
	Very often	fairly often	occasionally	hardly ever	never
	10.9%	26.7%	39.5%	19.4%	1.6%
Safest type of blood donor					
	Yes				
VNRD	821 (71.2%)				
Paid donor	6 (0.6%)				
Family replacement	261 (22.6%)				
I don't know	65 (5.6%)				

Table 4: Practice of blood donation

Have you ever donated blood

	Frequency(n=1153)	Percent
yes	615	53.3
No	538	46.7

Have you donated in last one year

	Frequency (N=615)	Percent
yes	132	21.5
No	483	78.5

Reasons for donating blood

	Frequency (n=615)	Percent
Voluntary	417	67.8
For my patient	45	7.3
For my relation or friend	150	24.4
My Hb was high	3	0.5

Willingness to donate if reminded

	Frequency(n=1153)	Percent
yes	904	78.4
No	60	5.2
Not sure	189	16.4

Encouraged first relative blood donation

	Frequency (n=1153)	Percent
Yes	333	28.9%
No	820	71.1%

Table 5: Physicians' views on remuneration for blood donation

Will you be willing to donate if paid?

	Frequency(n=1153)	Percent
Yes	220	19.08
No	753	65.31
Maybe	180	15.61

Will you be willing to donate with gifts?

	Frequency(n=1153)	Percent
Yes	349	30.27
No	567	49.18
May be	237	20.56

Should blood donors be paid?

Yes	427	37%
No	461	40%
Indifferent	265	23%

Fig 1: Frequency of blood donation among doctors who are blood donors

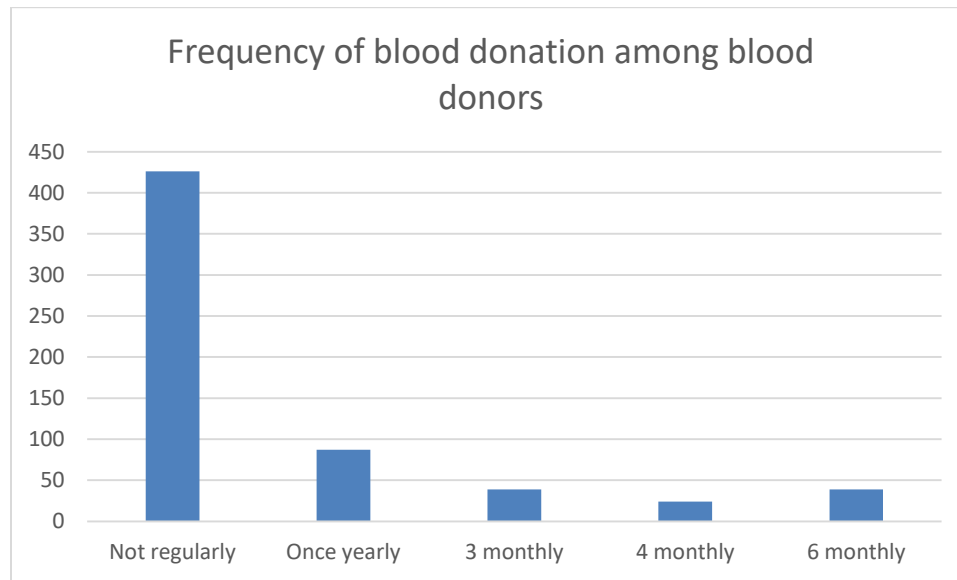
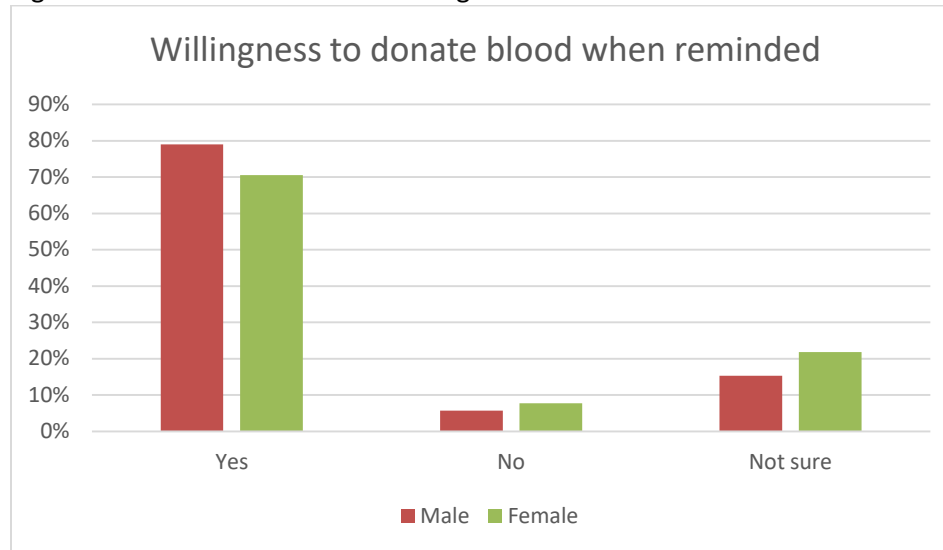


Figure 2: Gender distribution of willingness to donate blood when reminded



UNDER PEER REVIEW

UNDER PEER REVIEW