**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 the motivation, willingness and opinion regarding blood donation among physicians in Nigeria and to 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.

Results: Out of the 1153 participants, 730(63.3%) were males, and mean age was 40.1±8.11years. 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%).

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



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## 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]

In order to increase the number of donated blood units, the RED Cross Society in collaboration with the blood transfusion centers have commenced donor recruitment by phone, e mails and other social media. Donors are updated on the current information on COVID-19 and encouraged to visit the donation centers at their convenience.[3]

The doctor-patient relationship has put the physicians at the heart of health care. The physicians also know by virtue of their training and experience the blood need of their patients. Thus, there are expectations that physicians would be a good and sustainable source of blood donors. The number of

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physicians who are blood donor have been found to vary from 3.1% to 41.4%.[14,15] Thus it is imperative to determine the barriers that prevent a good number of physicians from donation blood.

Healthcare workers can be a very reliable and easily accessible source of safe blood if they are motivated to do so. 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. This is aimed at encouraging voluntary blood donation among physicians.

## 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. The doctors belonged to an umbrella body called Nigerian Medical Association. The questionnaires were sent via e mail and WHATSAPP numbers to all the participants. A total of 1890 doctors and dentists were invited to complete the questionnaire.

### 4.3. Study Design and data collection

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This is a cross-sectional, descriptive study that is questionnaire based. A self-created questionnaire was used for data collection. The questionnaire was validated by two consultants in transfusion medicine expert and piloted among 20 resident doctors selected randomly from the Pathology Department. Modifications on the questionnaires were made based on the feedback from the pilot study. The survey included questions on the respondents' demographics including age, gender, marital status, hospital , and number of years of practice, knowledge about blood donation; practice on blood donoation; reasons for not donating and motivation for donation.

The knowledge of blood donation was assessed by 5 questions summarized as follows: the knowledge of their blood group, safest type of blood donor, appropriateness of blood transfusion among relatives, and frequency of blood donation. A respondent is said to have knowledgeable if he answered correctly to all at least 4 of the 5 questions; and non- knowledgeable if he answered correctly to 3 or less. The practice of blood donation was assessed by asking the respondents if they had donated blood before. Those who answered 'yes' were asked further if they had donated in the last one year and the reason for donating blood.

4.4 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.

4.5. Ethical Considerations

Ethical clearance for this study was obtained from the University of Nigeria Teaching hospital research ethics Committee. Participants were anonymized and confidentiality ensured. The completion and submission of the questionnaire implied that consent was given for this study. The survey tool

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automatically verified that all questions had to be filled completely before submission and could not be submitted twice. All subjects were informed the survey purpose and signed written consents were obtained online before they started answering the questions

## 5.0 Results

5.1 Demographic characteristics: Only 1153 physicians responded giving a response rate of 61%. 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±8.11years. Male to female ratio was 1.7:1. The demographic characteristics are as shown in Table 1.

5.2 Knowledge about blood donation: Seven hundred and eleven (61.7%) respondents were knowledgeable while (38.3%) were not knowledgeable. 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%; $\chi 2$:78.0; $p< 0.001$). Those who have worked for less than 15 years were significantly less likely to donate blood (419/840.49% vs 196/313, 62.6%; $\chi 2$:14.36; $p<0.001$). More than half (72. 2%) of those that donated

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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 ($X2=13.56$; $df=2$; $p<0.001$)

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 needle107/538 (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%).

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## 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.[16,17] 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.[15]

Almost all of the physicians knew their blood group (99.3%). This finding is similar to the finding by Nwogoh et al.[15] 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.[15] 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.

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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. Thus, the practice blood donations from first relatives which has its potential risks should be discouraged. 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. The strength of this study is the large sample size and the representation of various cadres of the medical profession.

Conclusion: Physicians are willing to donate blood voluntarily but less than two thirds had ever donated blood. It is important to regularly remind physicians to donate blood as this would improve their blood donation practices. Concerted efforts to remove the various barriers that hindered blood donation practice should be the focus of policy makers and those in charge of transfusion services.

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## Tables

Table 1: Sociodemographic characteristics of the participants

| | | | |
|---|---|---|---|
| **Age range** | | **N(%)** | **Total** |
| | 20-30 | 5(0.4%) | |
| | 31-40 | 398(34.5%) | |
| | 41-50 | 571(49.5%) | |
| | 51-60 | 158(13.7%) | |
| | 61- 70 | 21(1.8%) | 1153 |
| **Sex** | | | |
| | Male | 730(63.3%) | |
| | Female | 423(36.7%) | 1153 |
| Marital Status | | | |
| | Single | 241(20.9%) | |
| | Married | 894 (76.7%) | |
| | Separated | 18 (1.6%) | |
| | Widow | 9 (0.8%) | |
| **Hospital** | | | |
| | Tertiary | 1056 (91.6%) | |
| | Secondary | 82(7.1%) | |
| | Primary | 0 | |
| | Private | 15(1.3%) | |
| **Designation** | | | |
| | House officer | 179 (15,5) | |
| | 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%) | |
| | 6-10 | 295 (25.6%) | |
| | 11-15 | 351 (30.4%) | |
| | 16-20 | 129 (11.2%) | |
| | >20 | 184 (16%) | |

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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 |

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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%) |

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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% |

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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% |

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

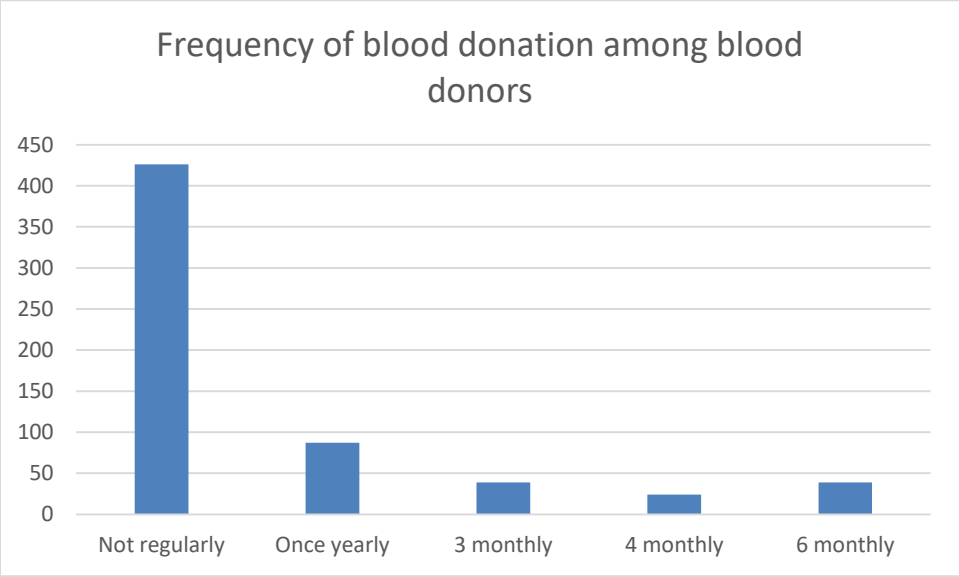


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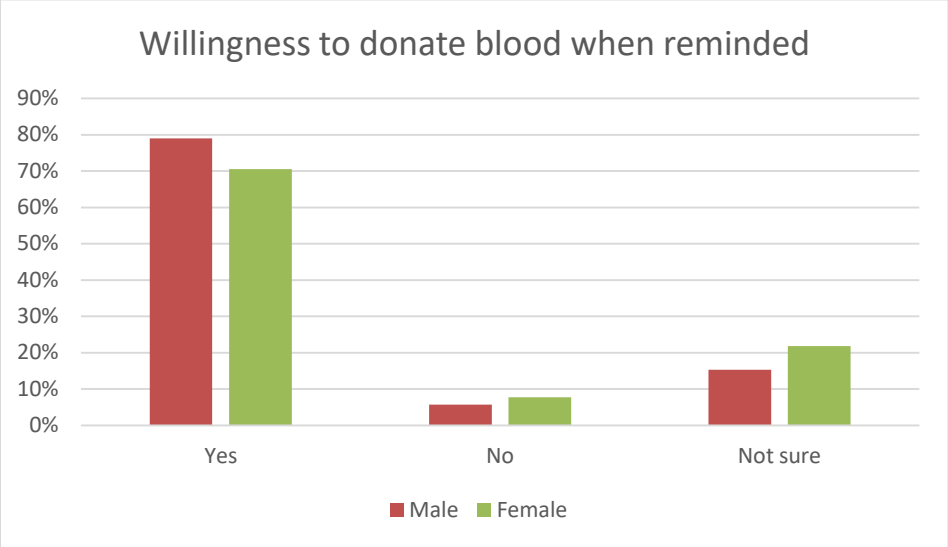
Figure 2: Gender distribution of willingness to donate blood when reminded

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