Afr. J. Med. Med. Sci. (2022) **5**1(3) 195-201

Knowledge, attitude, practice, and barriers to blood donation among health care workers at a tertiary hospital in Nigeria

TS Akingbola[1,2], AE Alagbe[2] and OW Aworanti[2]
Department of Haematology[1], College of Medicine, University of Ibadan and Department of Haematology[2], University College Hospital, Ibadan, Nigeria

Abstract
Introduction: The attitude towards blood donation among health care workers is poor, and the barriers to blood donation vary among countries. The objective of this study was to assess the knowledge, attitude, practice, and barriers regarding blood donation among health care workers at a tertiary hospital in Southwest, Nigeria.
Methods: This descriptive study included consenting health care workers who were prospective voluntary blood donors at a tertiary hospital. After obtaining informed consent, the questionnaires were filled appropriately.
Results: Of the 95 respondents, 59 (62.1%) had donated blood in the past, and 14 (14.7%) were females. A majority (93.7%) of the respondents reported that voluntary blood donation (VBD) means giving blood to save life, and 65% said yes when asked if potential donors with diabetes mellitus could donate blood. Lack of invitation to donate blood (37.9%) and payment by potential recipients for blood units (31.6%) were the prevalent barriers reported.
Conclusion: Although health care workers know that blood donation is lifesaving, they perceived that donating blood can lead to death. The most common barriers to blood donation were lack of invitation to donate blood and payment for the provision of blood units by potential blood recipients.

Keywords: *Blood donation, Barriers, Attitude, Practice, Knowledge, Health care workers.*

Résumé
Contexet: L'attitude envers le don de sang parmi les travailleurs de la santé est mauvaise et les obstacles au don de sang varient selon les pays. L'objectif de cette étude était d'évaluer les connaissances, l'attitude, la pratique et les obstacles concernant le don de sang parmi les agents de santé d'un hôpital tertiaire du sud-ouest du Nigéria.
Méthodes : Cette étude descriptive comprenait des travailleurs de la santé consentants qui étaient des donneurs de sang volontaires potentiels dans un hôpital tertiaire. Après avoir obtenu le consentement éclairé, les questionnaires ont été remplis de manière appropriée.
Résultats : Sur les 95 répondants, 59 (62,1 %) avaient déjà donné du sang et 14 (14,7 %) étaient des femmes. Une majorité (93,7%) des personnes interrogées ont déclaré que le don de sang volontaire (DVB) signifie donner du sang pour sauver des vies, et 65% ont répondu oui lorsqu'on leur a demandé si des donneurs potentiels atteints de diabète sucré pouvaient donner du sang. L'absence d'invitation à donner du sang (37,9 %) et le paiement par les receveurs potentiels des unités de sang (31,6 %) étaient les principaux obstacles signalés.
Conclusion : Bien que les travailleurs de la santé sachent que le don de sang sauve des vies, ils ont l'impression que le don de sang peut entraîner la mort. Les obstacles les plus courants au don de sang étaient le manque d'invitation à donner du sang et le paiement pour la fourniture d'unités de sang par les receveurs potentiels.

Mots clés : *Don de sang, Obstacles, Attitude, Pratique, Connaissances, Agents de santé*

Introduction

Blood donation by humans is a major source of blood and blood components/products, which are vital for saving the lives of individuals in elective and emergency situations such as gynaecological conditions, labour, paediatric illnesses, trauma, cancers, or medical/haematology/oncology conditions. In such emergencies, there is a loss of large volumes of blood, premature destruction of blood cells, or inadequate blood production, leading to urgent replacement using safe blood.

According to the Melbourne Declaration, voluntary non-remunerated blood donation (VNRBD) has been universally declared as the cornerstone of safe blood [1]. Globally, there is an increasing demand for blood transfusion and donation [2-4]. In a study in the USA, only 5% of individuals were blood donors and even lower rates were found among African Americans [5, 6]. In a European survey, only a few

Correspondence: Dr. A.E. Alagbe, Department of Haematology, Univrsity College Hospital, Ibadan, Nigeria. E-mail: alagbeac@yahoo.ca

countries have documented VNRBD, in which donors received only light refreshment after blood donation [3]. In a study of 163 health care workers in Nigeria, of the 36 donors who had previously donated blood, 15 (41.7%) were VNRBD, while the others were family replacement or paid donors [7]. In Nigeria, as in many other developing countries, there is no national data on the number of units of blood required or donated annually; however, from local/hospital studies, approximately 7,000 units of blood were utilised in a tertiary hospital in Benin, a South-South city in Nigeria [8,9]. In a previous study in our Centre, more than 8000 units of blood were donated over a 15-month period. In both studies, most of the donated units were blood replacement by family or paid/remunerated donors [7, 9].

Despite the establishment of the National Blood Transfusion Service in Nigeria, the provision of voluntary non-remunerated blood units is still far from being central, as advocated by the World Health Organization (WHO) [1]. The responsibility of the donor drives remains that of the individual blood banks, which are units of health institutions. Voluntary non-remunerated blood donation provides blood with little risk of transfusion-related infections because the donors are self-motivated to donate blood with altruism [10]. This is contrary to the paid donors who are in most cases motivated by financial gain as incentives; hence, most of such donors return to donate blood more frequently than expected, regardless of their high-risk lifestyle. Thus, the risk of transmissible-transfusion infections is increased [8].

Lack of voluntary donors is associated with barriers such as lack of invitation to donate blood, medically unfit, fear, or lack of education [11]. The level of knowledge of blood donation and transfusion process, which is better in health care workers than in the general population, may influence the practice, attitude and barriers to VNRBD [12]. Therefore, this study investigated the knowledge, attitude, practice and barriers to voluntary blood donations among health care workers at University College Hospital, Ibadan, Nigeria. Such information will aid in raising awareness and help improve the safe blood pool via VNRBD by health care workers.

Methods and materials

Study design

The study was a descriptive study to determine the knowledge, attitude, practice and barriers to voluntary blood donations among consenting health care workers at University College Hospital, Ibadan, Nigeria. The health care workers referred to any staff (junior or senior staff member) of the hospital, who were prospective voluntary blood donors.

Study site

The study was conducted at the Blood Bank unit of the Department of Haematology, University College Hospital, Ibadan.

Study population

Consenting health care workers who were prospective voluntary blood donors were consecutively selected and enrolled in this study. Following informed consent, copies of the questionnaire (supplementary data) were filled appropriately. The questionnaire is well structured and in simple terms that are easy to understand.

The survey instrument was a self-administered questionnaire that was divided into five sections: demographic characteristics, knowledge relating to voluntary blood donation, perception towards blood donation, blood donation related practices, and barriers to voluntary blood donation.

Ethical consideration

Ethical approval for the study was obtained from the ethical committee of the University of Ibadan/ University College Hospital Institution Review Board. Members of the staff of the University College Hospital, Ibadan, who were < 18 years of age and prospective voluntary blood donors, were included in this study. All staff who were not interested were excluded from the study. Participation was voluntary and each participant was assured of their anonymity and confidentiality before the survey instrument was administered.

Data analysis

The data were entered into a password-protected personal computer. Statistical analysis was performed using the Statistical Package for Social Science (SPSS) version 23.0 (SPSS Inc., Chicago, USA). The data are presented as frequencies and are summarised in tables and graphs.

Results

Demographic parameters of participants

Of the 95 respondents, there were more males 62 (65.3%) than the female respondents 33 (34.7%) with a mean age of 38.1 ± 10.6 years and 38.1 ± 8.9 years respectively. Most of the respondents were married (67.4%) and as expected, the majority of the respondents were Yorubas (87.4%) because the study location was in the Yoruba-speaking part of Nigeria. The majority (65%) of respondents were Christians, and most had tertiary education (85.3%), Table 1.

Table 1: Demographic parameters of participants. N=95.

Parameters	Frequency (%)
Gender	
Male	62 (65.3)
Female	33 (34.7)
Age groups (years)	
18-27	14 (14.7)
28-37	39 (41.1)
38-47	22 (23.1)
48-57	15 (15.8)
58-67	05(5.3)
Marital status	
Single	31(32.6)
Married	64 (67.4)
Ethnicity/Tribe	
Yoruba	83 (87.4)
Igbo	11 (11.6)
Others	1 (1.0)
Religion	
Christianity	65 (69.1)
Islam	27 (28.7)
Traditional	03 (3.2)
Educational level	
Tertiary	81 (85.3)
Others	14 (14.7)

Knowledge of voluntary blood donation among respondents

Regarding knowledge of voluntary blood donation, most of the respondents reported that voluntary blood donation (VBD) means giving blood to save life (93.7%), while others defined VBD as giving blood for money (4.2%), or for other incentives (2.1%), Table 2.

Clinical conditions of donors that will permit blood donation

When asked about the clinical conditions that would allow donors to donate blood, most respondents said breastfeeding mothers, pregnant women, menstruating women, asthmatic patients, and those who had haematological diseases could not donate blood, Table 3. Surprisingly, of the 95 respondents, over 65% of them said yes when asked if persons with diabetes mellitus could donate blood.

Perception of blood donation

Regarding the perception of blood donation, the majority of the respondents disagreed when asked if

Table 2: Knowledge of voluntary blood donation among respondents. N=95.

Knowledge	Frequency(%)	Knowledge	Frequency (%)
Voluntary blood donation		*No of units of blood to donate at a time.*	
Give blood to save life	89 (93.7)	1	83 (87.3)
Give blood for money to save life	04 (4.2)	2	11 (11.6)
Giving blood for other incentives	02 (2.1)	3	01 (1.1)
Age for donation (yrs)		*Storage duration (days) of blood after collection.*	
<15	03 (3.16)	20	33 (34.7)
>15-65	89 (93.7)	35	33 (34.7)
>65	03 (3.16)	45	25 (26.3)
		>45	04(4.3)
Optimal BP range for blood donors		*Volume (ml) of a unit of blood donated.*	
100-130/80	81 (85.3)	300	37 (39)
140-180/80	10 (10.5)	350	06 (6.3)
>180/80	04 (4.2)	450	19 (2)
		500	33 (34.7)
No of times / yr for healthy males to donate blood.		*How long is the blood donation process?*	
Once	05 (5.3)	35mins	62 (65.2)
2	11 (11.6)	1hr	29 (30.5)
3	22 (23.2)	2hr	04 (4.3)
4	57 (60.0)		
No of times/yr for healthy females to donate blood.		*Minimum time for meal before blood collection*	
Once	10 (10.5)	.>4h	89 (93.7)
2	39 (40.1)	>6h	05 (5.3)
3	34 (35.8)	>12h	01 (1.0)
4	12 (12.6)		

Table 3: Individuals with the following clinical conditions can donate blood. N=95

Clinical conditions	Yes (%)	No (%)
Pregnancy	04 (4.2)	91 (95.8)
Breastfeeding	11 (11.6)	84 (88.4)
Menstruation	11 (11.6)	84 (88.4)
Asthma	25 (26.3)	70 (73.7)
Diabetes mellitus	63 (66.3)	32 (33.7)
Hypertension	07 (7.4)	88 (92.6)
Blood diseases	03 (3.2)	92 (96.8)

Table 4: Perception of blood donation among respondents. N=95.

Perception	Agree	Disagree
Blood donation is risky	09 (9.5)	86 (90.5)
Blood donated may be used for rituals	07 (7.4)	88 (92.6)
Blood donated is a sin	02 (2.1)	93 (97.9)
Behavior / characters could be transmitted through blood donated	06 (6.3)	89 (93.7)
Blood donation is a waste of time	05 (5.3)	90 (94.7)
More than enough blood is donated	36 (37.9)	59 (62.1)
Blood donation lead to death	62 (65.3)	33 (34.7)
Donated blood is used for witch craft	05(5.3)	90 (94.7)
Blood donation leads to shortage of blood	08 (8.4)	87 (91.6)
Blood is donated because of incentives	15 (15.8)	80 (64.2)
Blood donation is noble	62 (65.3)	33 (34.7)
Blood donation should be compulsory	70 (73.7)	25 (26.3)
Blood donation saves life	84 (88.4)	11 (11.6)
Health care workers should not donate blood	70 (73.7)	25 (26.3)
Blood donation cannot save life	06 (6.3)	89 (93.7)

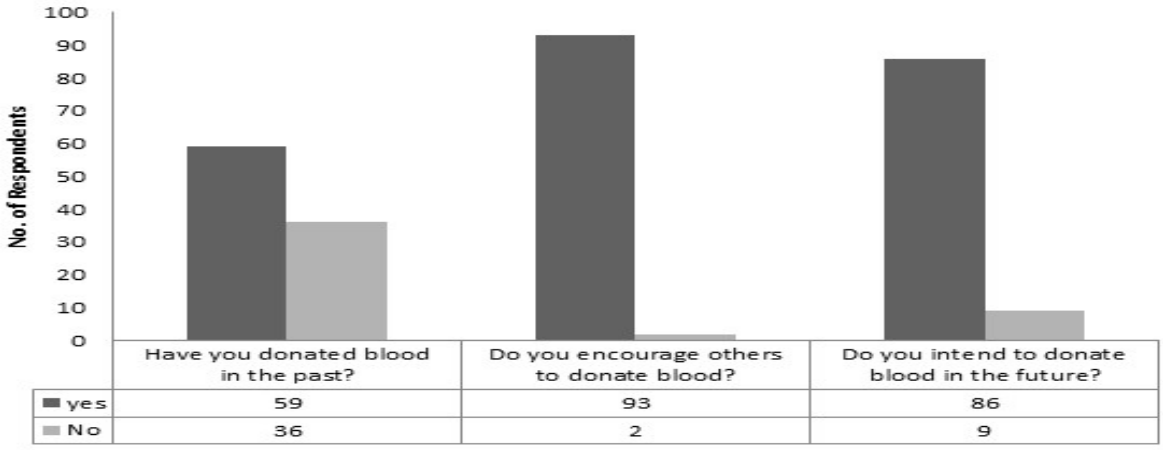

Figure 1: Practice of blood donation among respondents. N=95.

blood donation was risky (86/95), a sin (93/95), a waste of time (90/95), or that the donated blood units could be used for rituals (88/95), (Table 4). However, most of the respondents agreed that blood donation is noble (62/95), saves life (84/95), and should be made compulsory for the populace (70/95), but that health care workers should not donate blood (89/95).

Practice of blood donation

Of the 95 respondents, 59 (62.1%) had previously donated blood, and 14 (14.7%) were females, Figure 1. Less than 10% of the respondents (9/95) did not intend to donate blood in the future, and a smaller percentage (2/95) reported that they did not encourage others to donate blood.

Barriers to blood donation among respondents

The major barriers to blood donation identified among respondents included lack of invitation to donate blood (36/95); provision of blood units to prospective recipients is not free (60/95), fear of selling donated blood (14/95), and non-remuneration for blood donors (14/95), Figure 2. Other barriers noted were fear of needle (12/95), fear of pre-screening test (9/95), religion forbids blood donation (4/95), the process of blood donation is long (13/95), and anaemia results from donating blood (9/95).

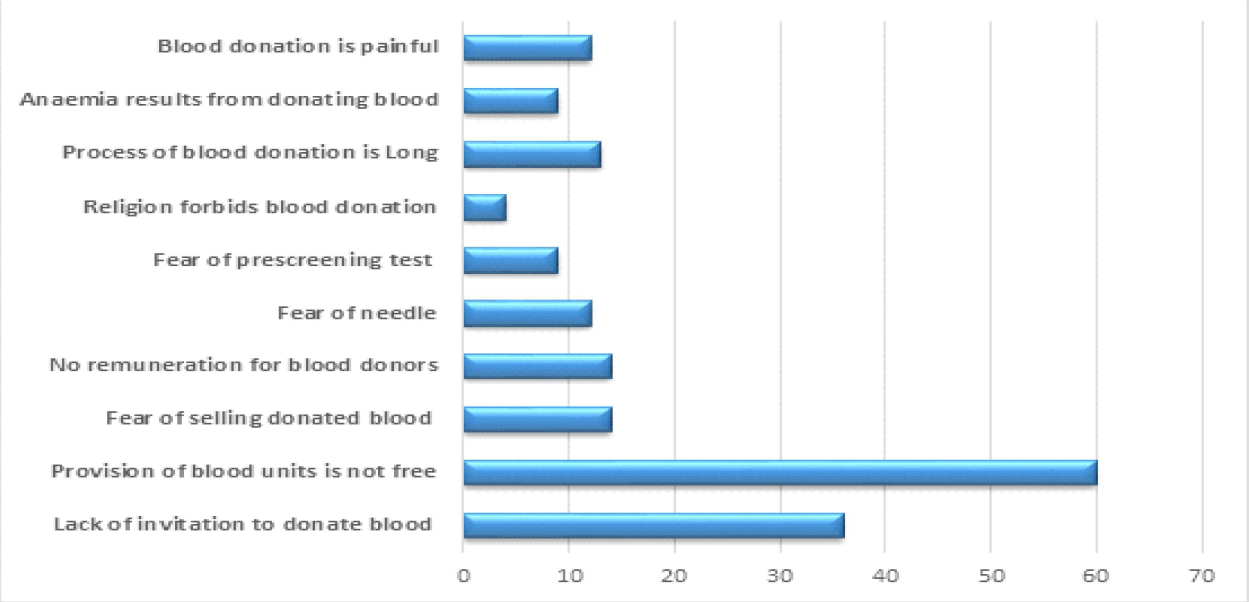

Figure 2: Barriers to blood donation among respondents. N-=95.

Discussion

This study investigated the knowledge, attitude, practice and barriers to voluntary blood donations among health care workers at a tertiary hospital in Southwest Nigeria. The majority of the respondents reported that blood donation was lifesaving, had previously donated blood, and were willing to practice blood donation again. The lack of invitation to donate blood and the need for a potential recipient to pay for blood units were the major barriers to blood donation.

In this study, 62.1% of the respondents had donated blood previously, and only 14.7% were women. This is contrary to the findings of Nwogoh *et al.* at the University of Benin Teaching Hospital, Benin, Nigeria, who reported a lower percentage (22.1%) among their respondents. This disparity could have been accounted for by the differences in the demographics and categories of staff involved in the studies [7], and more so, the participants were prospective blood donors. However, the practice of blood donation among health care workers in this study was similar to that observed in previous studies [13, 14]. Similarly, as reported by other researchers, the practice of blood donation is male-dominated in the index study [15-18].

As expected and similar to previous studies among health care workers, the present study showed fair knowledge regarding blood donation among the respondents, who were mainly graduates of tertiary institutions and health care workers. Specific areas with lack of knowledge identified in this study were the quantity of blood donated at a time and the clinical conditions of blood donors. These findings are similar to those of previous studies in which health care workers had better knowledge than the general population [7, 12]. This may explain the basis for the level of knowledge observed in this study because it is rational to think that health care workers are better educated on health-related issues, including blood donation. Although the respondents knew that blood donation was lifesaving, they perceived that donating blood could lead to death. From the above, the possible inferences would be that many of the respondents had a wrong perception about blood

donation, there is a low level of enlightenment, and/or there is poor participation of health care workers in blood donation processes. Therefore, an interventional study using health education on blood donation as a tool may improve the perception of health care workers towards blood donation, and perhaps improve the practice of voluntary blood donation.

A unique finding of this study is the observation of several barriers to blood donation. Two main barriers were the lack of invitation to donate blood, and potential recipients were made to pay for blood units in our centre, as in other institutions in and around Nigeria. The other barriers were fear of pre-screening, religious beliefs, fear that donated blood may be sold, lack of remuneration for donors, duration for donating blood was long, and the blood donation procedure was painful. This is similar to previous surveys in which respondents stated that the reasons for not giving blood included "because I did not think about it" and "because no one is inviting me" or "do not know where to donate" [14, 19, 20]. Similarly, in other studies conducted in Pakistan, Saudi Arabia, Trinidad and Tobago, and Nigeria, the reason for not donating blood was that no one invited the respondents [7, 13, 21]. Contrary to the index study, other barriers reported were that the respondents did not have a convenient place to donate blood, did not know where to donate blood, fear of needles, pain, and feeling of fainting. This suggests the need for a deliberate introduction of health care workers to blood suites, provision of adequate/conducive donation facilities for potential donors, and rigorous and aggressive sensitization/health education of health care workers.

Although this study has the advantage of targeting health care workers, it is limited by the fact that a single tertiary centre was studied. A multi-centre study will reveal the influence of regional cultural practices on the perception and practice of blood donation, and will help improve policies on blood donation. Another limitation is doing a cross sectional study. A prospective interventional study (using health education on blood donation as an intervention) would reveal the willingness of health care workers to join the pool of voluntary blood donors.

In conclusion, it is obvious from the index study that although health care workers know that blood donation is lifesaving; they perceived that donating blood can lead to death. The most common barriers to blood donation were lack of invitation to donate blood and payment for the provision of blood units by potential blood recipients. We recommend that these barriers to blood donation and the negative perception about blood donation among health care workers could be eliminated by aggressive enlightenment campaigns and educational programs on blood donation. This will improve the practice of blood donation and contribute to the pool of safe blood through voluntary blood donation.

What is already known on this topic?

- Blood donation is male dominated in Nigeria.
- Health care workers know that blood donation is lifesaving.

What this study adds?

- Healthcare workers perceive that blood donation can lead to death. This requires urgent educational interventions for blood donation.
- Lack of invitation and payment for blood units by potential blood recipients are major barriers to voluntary blood donation.

Acknowledgements

The authors acknowledge the staff of the University College Hospital, Ibadan, for volunteering to donate blood and taking part in the study.

References

1. WHO Expert Group. Expert consensus statement on achieving self sufficiency in safe blood and blood products, based on voluntary non remunerated blood donation (VNRBD). Vox Sang 2012;103:337 342.
2. U.S. Department of Health & Human Services. Agency for Healthcare Research and Quality Blood transfusions more than double since 1997. AHRQ News and Numbers; 2009.
3. Mascaretti L, James V, Barbara J, Cárdenas JM, Blagoevska M, Haricic M. et al. Comparative analysis of national regulations concerning blood safety across Europe. Transfus Med 2004; 14:105-111.
4. Directorate General for Communication. Blood donation and blood transfusions. Brussels, Belgium (2009).
5. Gillespie TW and Hillyer CD. Blood donors and factors impacting the blood donation decision. Transfus Med Rev 2002; 16: 115-130.
6. Shaz BH, James AB, Hillyer KL, Schreiber GB and Hillyer CD. Demographic patterns of blood donors and donations in a large metropolitan area. J Natl Med Assoc 2011; 103: 351-357.
7. Nwogoh B, Aigberadion U and Nwannadi A. Knowledge, attitude and practice of voluntary blood donation among healthcare worker at the

university of Benin teaching hospital, Benin city, Nigeria. J Blood Transfus 2013; 6.
8. B. Nwogoh D. Ikponwen and M. E. Isoa. "Donor blood procurement and the risk of transfusion transmissible viral infections in a tertiary health facility in South-South Nigeria," Nigerian Medical Journal 2011; vol. 52, no. 4, pp. 227–229.
9. Anyanwu-Yeiya CC, Sonubi O and Kotila TR. Targeting Females as Voluntary Non Remunerated Donors in Developing Nations. J Blood Disord Transfus. S4: S4-002.
10. Garraud O., and Lefrère J.-J. Voluntary non-remunerated blood donation and reasons for donating: is there room for philosophy? Blood Transfusion, 12 (Suppl 1), s404–s405.
11. Shaz BH and Hillyer CD. Minority donation in the United States: challenges and needs. Curr Opin Hematol 2010; 17: 544-549.
12. Rathod GB and Parmar P. Comparison regarding knowledge, attitude and practice of blood donation between health professionals and general population. Int J Curr Res Rev 2012; 4:114-120.
13. Waheed U, Azmat M and Zaheer H. Knowledge, attitude and practice towards blood donation in Pakistan: A national wide survey. Hematol Transfus Int J 2015; 1:00018.
14. Al-Haqqan T, Husain A, Al-Kandari N, *et al*. A Cross-Sectional Study of Knowledge, Attitude, Practice, and Barriers Regarding Blood Donation among General Population in Kuwait. Int J Community Fam Med. 2016; 1: 120.
15. Abolfotouh MA, Al-Assiri MH, Al-Omani M, *et al*. Public awareness of blood donation in Central Saudi Arabia. Int J Gen Med. 2014; 7: 401-410.
16. Al-Drees A. Attitude, belief and knowledge about blood donation and transfusion in Saudi population donation and transfusion in Saudi population. Pak J Med Sci. 2008; 24:74-79.
17. Mousavi F, Tavabi AA, Golestan B, *et al*. Knowledge, attitude and practice towards blood donation in Iranian population. Transfus Med 2011; 21: 308-317.
18. Tagny CT, Owusu-Ofori S, Mbanya D and Deneys V. The blood donor in sub-Saharan Africa: a review. Transfusion Medicine. 2010; 20 (1): 1-10.
19. Attitalla IH. Motivation and education campaigns may enhance the attitude of blood donors swiftly. Trends Applied Sci Res. 2011; 6:1238-1240.
20. James AB, Schreiber GB, Hillyer CD and Shaz BH. Blood donations, motivations and barriers: A descriptive study of African Americans and white voters. Transfusion and apharesis science. 2013; 48:87-93.
21. Lownik E, Riley E, Konstenius T, Riley W and McCullough J. Knowledge, attitudes and practices surveys of blood donation in developing countries. Vox Sang. 2012; 103 (1): 64-74.

Received = 16/11/2020
Accepted = 16/03/2021