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Knowledge, attitude and practice of voluntary blood donation among family donors in the National Blood Transfusion Center

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Abstract

Background: blood donation by human still the only source of blood and blood components. Generally, donors classified into voluntary blood donor, family (or replacement) blood donor and paid blood donors. The safest donors found among people who donate their blood is the voluntarily blood donation. The study of attitude, beliefs, and level of knowledge associated with blood donation may enhance the recruitment of donors to blood donation. Aim of the study: assessment of knowledge, attitude and, practice of voluntary blood donation among family donors in the National Center for Blood Transfusion (NCBT) to identify and recruit potential voluntary blood donors. Materials and methods: This is a cross-sectional descriptive study carried out at the National center for Blood Transfusion-Baghdad in the period between October 2022 and February 2023. A questionnaire form was prepared for the assessment. A Total of 100 family (replacement) blood donor were included in the study. Results: The median of age was 33 (mean 34 +SD 8.9) years with range of 20-53 years age. All donors were males. The largest group of the responders (41%) is of secondary level of education. Seventy (70%) donors know their blood group. Sixty-six (66%) donors know the most common blood group in the world. Fifty-nine (59%) donors do not know the volume of blood that collected during each donation; and only 30 (30%) donors know the volume of the donated blood. Sixty-four (64%) donors know the correct duration of donation process. Forty-seven (47%) donors think that the individual can donate blood 2 times in the year; 17 (17%) stated 3 and 21(21%) stated more than 3 donations. Forty five (45%) donors stated that viral diseases can transmitted by blood transfusion, 11(11%) donors believe that cancer transmitted by transfusion , 15(15%) donors stated that chronic disorder can be transmitted by transfusion, while 29(29%) don't know the diseases that can be transmitted by blood transfusion. Attitude towards Blood Donation; 84(84%) donors stated that donation has no harmful effect on the donor, and 75(75%) donors think that blood donation is beneficial for heath. Fifty-six (56%) donors practice voluntarily donation previously while 44(44%) donors practice replacement donation only. Conclusions there is good attitude toward blood donation and good practice of voluntary non-remunerated donation among family blood donors , in contrary there is a defect in the information and knowledge regarding the volume of donated blood , frequency of donations and the disorders that can transmitted by blood transfusion.

Keywords: Family/replacement blood donor, Voluntary donor, National center for blood transfusion.

1. Introduction

In spite of extensive researches, no true substitute for blood or blood component was available, and blood donation by human still the major source of blood and blood components (Nwogoh et al 2013) and contrary, there is shortage of active blood donors to meet the increased demands of blood (Nwogoh et al 2012).

Blood banks are the institutes that should provide adequate and safe blood to the community through blood donation. Generally, donors classified into voluntary blood donors, family (or replacement) blood donors and paid blood donors. The safest donors found among people who donate their blood is the voluntarily blood donation; they are self-aware of their suitability to serve as blood donors. The risk of transfusion transmissible diseases (TTD) is highest with the use of blood from paid donors (Nwogoh et al 2012, Newago et al 2013).

A safe supply of blood depends on a well-organized system with regular donation by healthy individuals who have no excess risk of transfusion-transmissible diseases in blood (Raleston et al 2018).

In many countries, the voluntary non-remunerated blood donors is preferable in terms of product safety. Prospective blood donors asked a series of specific, direct questions about risk factors for infection with blood-transmissible diseases, and this screening estimated to eliminate more than 90% of unsuitable donors (Hoffbrands et al 2020).

The World Health Organization supports the voluntary, non-remunerable blood donation. Accept only voluntary/replacement non-remunerated blood donors (WHO 2021, WHO 2023). According to the data analysis of WHO, the voluntary non –remunerated blood donation constitute less than 40% of blood donation in some countries while in other countries it constitutes 98% (Lafta RK and Majeed 2008).

The study of attitude, beliefs, and level of knowledge associated with blood donation may enhance the recruitment of donors to blood donation. Family/Replacement donors (FRD) expected to have a good knowledge of blood usage, to be aware of the increasing demand and scarcity of the products, and thus expected to donate as well as encourage voluntary blood donation among the public(Nwogoh et al 2013).

Study Objectives: The objectives of this study were to assessment of knowledge, attitude and, practice of voluntary blood donation among family donors in the National Blood Transfusion Center to identify and recruit potential voluntary blood donors

2. Materials and Methods

This is a cross-sectional descriptive study carried out at the National Center for Blood Transfusion-Baghdad in the period between October 2022 and February 2023.

The respondents informed on the objective of the study. A verbal acceptance to participate in the study taken prior to each interview.

A questionnaire form was prepared for the assessment the knowledge, attitude, and practice of voluntary blood donation of the family donors attending the center; the questions administered through an interview that done by the researcher.

The interviews with the donors were done by visiting the center one day per week, (10 respondents/day); each interview lasted about 15-20 minutes

A total of 100 family (replacement) blood donors were included in the study.

Statistical analysis: The data presented by frequency distribution and means and standard deviation (SD) and median made for selected variables.

3. Results

Socio- demographic Parameters: One-hundred family blood donors responded to the questionnaire. The median of age was 33 (mean 34 +SD 8.9) years with range of 20-53 years age.

All donors were males; 70 (70%) donors were married, while 30 (30%) donors were singles. The largest group of the responders (41%) is of secondary level of education while

the unlettered constitute the least (1%). Details of their socio-demographic parameters represented in Table-1.

Table 1: The Socio-Demographic Parameters of the Family Donors.

1-Median age	33 years	
2-Age range	20-53 years	
	N0. Of donors	percentage
3-Gender;all males	100	100
4-Marital status	100	
-Married	70	70
-Single	30	30
5-Educational status	100	
-Unlettered	1	1
-Primary school	28	28
-Secondary school	41	41
-Tertiary school	28	28
-Postgraduate	2	2

Regarding the knowledge of family donor toward blood donation:

Most of the donors know their blood group; 70 (70%) donors know their blood group, but still 30(30%) donors do not know their blood group. Sixty-six (66%) donors know the most common blood group in the world while 16% give wrong answer and 18% do not know. The most frequent blood group in the responded donors was (O)-table 2.

Fifty nine (59%) donors do not know the volume of blood that collected during each donation; and only 30 (30%) donors know the volume of the donated blood while 11% suspect to be 1 litter.

Sixty-four (64%) donors know the correct duration of donation process (10 minutes) while 28(28%) donors stated more than 10 minutes and eight (8%) donors do not know the proper duration.

Forty-seven (47%) donors think that the individual can donate blood 2 times in the year; 17 (17%) stated 3 and 21(21%) stated more than 3 donations while 10 (10%) stated one donation in the year. Five (5%) donors do not know.

Forty five (45%) donors stated that viral diseases can transmitted by blood transfusion, 11(11%) donors believe that cancer transmitted by transfusion , 15(15%) donors stated that chronic disorder can be transmitted by transfusion, while 29(29%) don't know the diseases that can be transmitted by blood transfusion Table-2.

Table 2: The Knowledge of Family Donor Toward Blood Donation.

1-Do you know your blood group?	Number and %	**4-What is the duration of a donation process?**	Number and %
Yes	70 (70%)	**<10 min.(correct)**	64(64%)
no	30 (30%)	> 10 min.	28(28%)
Frequency of Blood group types of responders		Don't know	8(8%)
O	50(50%)		
A	10(10%)		
B	8(8%)		
AB	2(2%)		

unknown	30(30%)		
2-What is the most common blood group?		**5-How many can an individual donate in year?**	
O(correct)	66 (66%)	1 donation	10(10%)
A	10 (10%)	2 donations	47 (47%)
B	5 (5%)	3 donations (correct)	17 (17%)
AB	1(1%)	>3 donations	21(21%)
Do not know	18 (18%)	Do not know	5(5%)
3- What volume of blood collected during each donation?		**6-What diseases are transmissible by blood transfusion?**	
<500 ml (correct)	30 (30%)	Viral disease (correct)	45(45%)
1000 ml	11(11%)	cancer	11(11%)
Don't know	59(59%)	Chronic disease	15(15%)
		Don't know	29(29%)

Attitude towards blood donation; 84(84%) donors stated that donation has no harmful effect on the donor, 15(15%) donors believe that there may be harmful effect while 1(1%) don't know. Regarding the best age group for donation, 94(94%) donors think that the age of 18-40 years is the best age group for donation. Regarding the benefits of blood donation, 75(75%) donors think that blood donation is beneficial for heath.

For the persons that should not donate blood, 51(51%) donors stated that pregnant woman not suitable for donation, while 31(31%) stated that the children not suitable for blood donation; Table-3. Regarding the practice of blood donation, 74 (74%) donors donated 1-5 pints and 26(26%) donated more than 5 pints as a family donors. Fifty-six (56%) donors practice voluntarily donation previously while 44(44%) donors practice replacement donation only.

Table 3: The Attitude and Donation Practice Among Family Donors.

1-Can blood donation cause harmful effect on the donor?	Number and%	**4- Who should not donate blood?**	Number and %
No	84(84%)	<18 years	31(31%)
Yes	15(15%)	>60 years	16(16%)
Don't know	1(1%)	Pregnant woman	51(51%)
2-Which is the best age group for donation?		Don't know	2(2%)
<18 year	1(1%)	**5-How many pints donated as a family donor.**	
18-40 year	94(94%)	1-5 pints	74(74%)
40-60 years	5(5%)	More than 5 pints	26(26%)
> 60 years	0(0%)		
3-What are the benefits of blood donation?		**6-Do you donated blood voluntarily?**	
Improve Health	75(75%)	Yes	56(56%)
Humanitarian	22(22%)	No	44(44%)
Social	2(2%)		
Don't Know	1(1%)		

Discussion

In Iraq, there is a dependency on family replacement donors and voluntary non-remunerated donors. Paid donors are unacceptable Some authors consider the overdependence on family replacement and remunerated donors to meet the increasing demand for blood and blood products poses serious danger to potential recipient because the risk of TTD is higher in family donor than voluntary donors (Singh and Bhatt 2017).

In contrast, recently, other authors refuse this concept and consider the family/replacement donor is legitimate and parallel in its safety to the voluntarily non-remunerated blood donors (Allian and Sibinga 2016).

This study was carried out to assess the knowledge, attitude and, practice of voluntary blood donation among family donors in the national blood transfusion center.

All the donors in this study were males due to limited number of females attend National Blood Transfusion Center for blood donation relatively to the males; this result was similar to the study of Omar et al (2018), which stated that the majority of donors in national blood transfusion center were males (Omar et al 2018). In addition, the study of Al-Joher et al (2015) in Saudi Arabia and Shahshahans (2007) in Iran showed that the female donors constitute only 5% of blood donors (Al-Joher et al 2016, Shahshahans 2007) ; the suggested causes for this situation is the increased prevalence of anemia in females, pregnancy, menstruation and social causes.

This study showed that the largest group of the responders (41%) is of secondary level of education which means that the young adults is the major group of donors; Lafta and Majeed (2008) showed similar results.

Regarding the knowledge of blood groups, the results showed good knowledge; that is most of the donors knows their blood group and the most frequent blood group; the study of Nwogoh et al (2013) and the study of Lafta and Majeed (2008) showed similar results. This may related to the fact that some of this information taught during years of schooling.

The most frequent blood group in the responded donors was (O) and this result expected as O blood group is the most frequent in community.

Regarding the volume of blood that taken from the donor in each session which is usually 450 + 10% ml (Council of Europe 2000), Fifty nine (59%) donors do not know the volume of blood that collected during each donation; and only 30 (30%) donors know the volume of the donated blood (400-500 ml), while 11% suspect to be 1 litter. The last group thought that the volume of blood collecting bag is one litter. The study of Lafta and Majeed (2008) showed that only half of the donor know the volume of blood donation; this mean that there is a defect in the education of the donors in regarding this point

Regarding the duration of phlebotomy, which is less than 10 minutes (Council of Europe); this study showed good knowledge, as 64% of donor know the ideal duration.

Regarding the frequency of donation, 47% of donors think that 2 times in the year can the person donate while the correct state is 3-4 /year (WHO 2012); this is a defect in the education of the blood donors and the correction of this idea will increase the blood donation.

For the transfusion transmissible diseases (TTD), only 45% of the donors think that viral disease can be transmitted by transfusion, 29% do not know while the remainder think that cancer and chronic disorder can be transmitted by transfusion and this incorrect believe. This result indicate a defect in the education of the blood donors in relation to TTD. The study of Lafta and Majeed (2008) that carried out in national blood transfusion center showed poor knowledge in respect to TTD. The study of

Nwogoh et al (2012) showed good knowledge, which is expected because the responder were physician. The study of Ahmed et al (2017) that carried out in Mosul among nurses showed that 91% of the studied nurses were aware of the risk of TTD.

The vast majority (84%) of the responder consider blood donation is safe and good experience and it is beneficial for health; Ahmed et al (2017) showed similar attitude. The study of Omar et al (2015) showed that, although the blood donation is safe but 13% of the studied donors showed adverse donor reactions that include hematoma, pallor, sweeting, nausea, dizziness, muscular twitching, weakness and convulsion.

This study showed that (56%) of the family donors experienced voluntary non-remunerated donation and 25% of the family donors donated more than 5 pints as a replacement donors. So effective personal communication strategy with these donors can convert them into regular voluntary donors and can be a permanent source of safe blood for the blood bank. Also, through effective personal contact with the family donors can convert theme to voluntary non-remunerated donors (Jain et al 2021,Mensha et al 2013) and according to the study of Charles et al 2020, the emotions and beliefs arising from family replacement donation encouraged additional replacement donation intention.

Regarding the benefit of blood donation for the donor, 75% of the donors in this study belief that the donation improve health. There are researches showed that blood donation is associated with reduced risk of myocardial infarction (Salonen et al 1998), but according to the study of Karki et al (2023) in Australia, they did not observe statistically significant reduction in cardio vascular disease. Blood donation may improve mental state (Seelig and Dobelle 2001), reduce the toxic effect of excess iron thereby reduce the risk of cancer (Zacharski 2008).

Blood donation provide free health checkup because the donor undergo simple examination includes checking pulse, blood pressure, body temperature and hemoglobin level.

Conclusions

There is good attitude toward blood donation and good practice of voluntary non-remunerated donation among family blood donors , in contrary there is a defect in the information and knowledge regarding the volume of donated blood , frequency of donations and the disorders that can transmitted by blood transfusion.

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References

- **Ahmed MA, Hussein AA and Youns NM (2017)**-Knowledge Attitude and Practice (KAP) of voluntary blood donation among nurses in Mosul teaching hospital-Mosul Journal of Nursing ; volume 3(1): 24-32 https://doi.org/10.33899/mjn.2017.160047.

- **Al-joher A, Al-saud A, Abalkhail Y et al (2016)**, Why do-Saudi women refrain donating their blood? –a study on the attitude, belief and motivation of Saudi female university students toward blood donation-clin lab; 62(5):771-9 https://doi.org/10.7754/clin.lab.2015.150718.

- **Allian JP and Sibinga CS (2016)**, Family donors are critical and legitimate in developing countries-Asian Journal of Transfusion Science; volume 10(1): 5-11 https://doi.org/10.4103/0973-6247.164270.

- **Charlis KS, Harrilal R, Singh S and et al (2020)**- Emotional and beliefs arising from replacement blood donation may hinder transition to exclusive voluntary non-remunerated blood donation- ISBT Science Series; volume 16 (4):242-247 https://doi.org/10.1111/voxs.12579.

- **Council of Europe publishing (2000)** - Guide to the preparation, use and quality assurance of blood components-6th edition –Germany.

- **Hoffbrands AV and Steensma DP (2020)** - Hoffbrands Essential Hematology-8th ed. WILEY Blackwell-page: 372-385 https://doi.org/10.1111/bjh.17033.

- **Jain R, Kumar R, Coshic P and et al (2021)** -Effectiveness of personal communication strategy in motivating replacement donors to become voluntary blood donors-ISBT Science Series; volume 16 (2):196-203 https://doi.org/10.1111/voxs.12628.

- **Karki S, Bell KJ, Hayen A and et al (2023)**- Regular high-frequency whole blood donation and risk of cardiovascular disease in middle aged and older blood donors in Australia-transfusion; volume 63 (5):1012-1022 https://doi.org/10.1111/trf.17358.

- **Lafta RK and Majeed M (2008)**- People knowledge regarding blood donation (A sample from Baghdad)-Iraqi j. Comm. Med;-volume 3: 181-187

- **Mensha KA, Achina G, Appiah R and et al (2013)**- Can family or replacement blood donors become regular volunteer donors?-transfusion; http://doi.org/10.1111/trf.12216

- **Nwogoh B, Aigberadion U and Nwannadi AI (2013)**-Knowledge, Attitude, and Practice of Voluntary Blood Donation among Healthcare Workers at the University of Benin Teaching Hospital, Benin City, Nigeria-Journal of Blood Transfusion:p:1-6 https://doi.org/10.1155/2013/797830.

- **Nwogoh B, Aigberadion U, Nwannadi I A and Aigbe I (2012)**-Knowledge, Attitude and Practice of Voluntary Blood Donation among Physicians in a Tertiary Health Facility of a Developing Country-J Blood Disorder and Transfus;Volume 3 (1): • 1000117 https://doi.org/10.5348/ijbti-2012-7-oa-2.

- **Omar AW , Abdelsahib SA, Raad A and Kalefa HJ(2018)**- Assessment of the motives for voluntary blood donation in the donors of Iraqi national blood bank in Baghdad-The Iraqi postgraduate medical journal; volume 17 (1):45-48

- **Omar WA, Ahmed SS, Mohammad SA, and Abbas ZF (2015)** -Assessment of adverse donor reactions in Iraqi national blood bank- the Iraqi postgraduate medical journal; volume 14(3): 419-425

- **Ralston SH, Penman ID, Strachan MWJ and Hobson RP (2018)** -Davidsons principles and practice of medicine-23rd ed.-Elsevier –china-page: 911-980

- **Salonen JT, Toumaninen TP, Salonen R and et al (1998)**- Donation of blood is associated with reduced risk of myocardial infarction-American journal of epidemiology ; volume 148(5):445-451 https://doi.org/10.1093/oxfordjournals.aje.a009669.

- **Seelig BJ and Dobelle WH (2001)**- Altruism and volunteer: psychological benefits from participating as a research subject-ASAIO Journal; volume 47(1):3-5 https://doi.org/10.1097/00002480-200101000-00002.

- **Shahshahans HJ (2007)**- Why do not women volunteer to give blood , a study of

knowledge attitude and practice of women about blood donation, Yazd , Iran- Transfusion medicine ;17: 451-54 https://doi.org/10.1111/j.1365-3148.2007.00803.x.

- **Singh PJ and Bhatt H (2017)**-Is there a need to phase out replacement blood donors by voluntary blood donors in hospital based blood transfusion services-Iraqi Journal of Hematology; volume 6 (2)- pp:43-47 https://doi.org/10.4103/ijh.ijh_15_17.

- **WHO (2012)**- Blood donor selection; guidelines on assessing donor suitability for blood donation-apps.who.int

- **WHO (2021)**- Global status report on blood safety and availability.

- **WHO (2023)**- Voluntary non-remunerated blood donations to ensure blood safety in the WHO South – East Asia Region to support universal health coverage-apps.who.int –regional office for South-East Asia

- **Zacharski LR, Chow BK, Howes PS and et al (2008)**- Decreased cancer risk after iron reduction in patient with peripheral arterial disease: results from randomized trial-Journal of the national cancer institute; volume 100(14) : 996-1002 https://doi.org/10.1093/jnci/djn209.

المعرفة والموقف والممارسة للتبرع بالدم الطوعي بين متبرعي العائلة في المركز الوطني لنقل الدم

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الخلاصة

الخلفية: لا يزال تبرع الإنسان بالدم هو المصدر الوحيد للدم ومكوناته. بشكل عام، يصنف المتبرعون بالدم إلى متبرعين بالدم طوعيًا أو متبرعين بالدم من العائلة (او عوض) ومتبرعين بالدم مدفوعي الأجر. أكثر المتبرعين أمانًا من الامراض المنتقلة عن طريق الدم هم المتبرعين طوعياً. قد تؤدي دراسة المواقف والمعتقدات ومستوى المعرفة المرتبطة بالتبرع بالدم إلى تعزيز تجنيد المتبرعين للتبرع بالدم.

الهدف من الدراسة: تقييم المعرفة والموقف والممارسة للتبرع بالدم الطوعي بين المتبرعين العائليين (العوض) في المركز الوطني لنقل الدم لتحديد وتجنيد المتبرعين بالدم المحتملين

المتبرعون وطرائق العمل: هذه دراسة وصفية مقطعية أجريت في المركز الوطني لنقل الدم -بغداد في الفترة ما بين تشرين الأول ٢٠٢٢ وشباط ٢٠٢٣

تم إعداد استمارة استبيان لتقييم المعرفة والموقف والممارسة للتبرع بالدم الطوعي للمتبرعين بالدم الذين يحضرون الى المركز؛ تدار الأسئلة من خلال مقابلة أجراها الباحث. تم شمول ١٠٠ من المتبرعين العائلين (العوض) في الدراسة.

النتائج: كان متوسط العمر ٣٣ سنه (وسط ٣٤ +/-٨,٩ سنه) بمدى ٢٠-٥٣ سنه. كان جميع المتبرعين من الذكور، كانت أكبر مجموعة من المستجيبين (٤١٪) هم من المستوى التعليمي الثانوي.

سبعون (٧٠٪) من المتبرعين يعرفون فصيلة الدم الخاصة بهم وستة وستون (٦٦٪) من المتبرعين يعرفون أكثر فصيلة الدم شيوعًا في العالم. تسعة وخمسون (٥٩٪) متبرع لا يعرفون حجم الدم الذي تم جمعه خلال كل تبرع و٣٠ (٣٠٪) من المتبرعين يعرفون حجم الدم المتبرع به. أربعة وستون (٦٤٪) متبرع يعرفون المدة الزمنيه الصحيحة لعملية التبرع. يعتقد سبعة وأربعون (٤٧٪) من المتبرعين أن بإمكان الفرد التبرع بالدم مرتين في السنة وذكر١٧ (١٧%) منهم ٣ مرات وذكر٢١ (٢١%) منهم أكثر من ٣ مرات في السنة. ذكر خمسة وأربعون (٤٥٪) من المتبرعين أن الأمراض الفيروسية يمكن أن تنتقل عن طريق نقل الدم، ويعتقد ١١ (١١٪) من المتبرعين أن السرطان ينتقل عن طريق نقل الدم، وذكر ١٥ (١٥٪) من المتبرعين أن الاضطراب المزمن يمكن أن ينتقل عن طريق نقل الدم بينما ذكر ٢٩ (٢٩%) متبرعا انهم لا يعلمون الامراض المنتقلة عن طريق الدم. وبخصوص الموقف من التبرع بالدم فقد صرح ٨٤ (٨٤٪) من المتبرعين أن التبرع ليس له تأثير ضار على المتبرع ويعتقد ٧٥ (٧٥٪) من المتبرعين أن التبرع بالدم مفيد للصحة. ستة وخمسون (٥٦٪) من المتبرعين مارسوا التبرع الطوعي سابقًا بينما يمارس ٤٤ (٤٤٪) من المتبرعين العائليين التبرع البديل (العوض) فقط.

الاستنتاجات: هناك موقف جيد تجاه التبرع بالدم وممارسة جيدة للتبرع الطوعي بدون أجر بين المتبرعين بالدم العائليين (العوض)، لكن بالمقابل يوجد خلل في المعلومات والمعرفة فيما يتعلق بحجم الدم المتبرع به وتكرار التبرعات خلال السنة الواحدة والامراض التي يمكن أن تنتقل عن طريق نقل الدم متبرع بالدم العائلي(العوض)، متبرع طوعي، المركز الوطني لنقل الدم الكلمات الدالة: