Evaluation of attitudes and barriers toward blood donation in volunteer blood donors in Mashhad city (North-east of Iran)

Running title: Attitudes and barriers toward blood donation

Faeze Shahriyari
Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Iranian Blood Transfusion Organization (IBTO), Tehran, Iran.
ORCID:0009-0003-7345-1590

Seyyede Fatemeh Shams
1. Department of Hematology and Blood Banking. Faculty of Medicine. Mashhad University of Medical Sciences, Mashhad, Iran 2.Cancer Molecular Pathology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran. Email: shams8869@yahoo.com
ORCID:0000-0001-9317-6635

Mehrnaz Abdolalian
Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Iranian Blood Transfusion Organization (IBTO), Tehran, Iran. Email: mehrnazabdolalian@gmail.com
ORCID:0009-0003-7345-1590

Narjes Soltani
Cancer Molecular Pathology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran. Email: Narjessoltanei@gmail.com
ORCID:0000-0001-5768-8246

Leila Rafaty Javanbakht
Birjand University of Medical Science, Birjand, Iran. Email: L_rafaty_j@yahoo.com

Mohammadreza Javan
Department of Anatomy, Physiology and Pharmacology, University of Saskatchewan, Saskatoon, Canada. Email: javaneee@gmail.com
ORCID:0000-0002-9272-2320

*__Corresponding author:__ Mohammadreza Javan
Address: Department of Anatomy, Physiology and Pharmacology, University of Saskatchewan, Saskatoon, Canada.
Email: javaneee@gmail.com
Postal code: 1449613111
Tel: +1(639)525-2572

Abstract

Background: Blood transfusion services are responsible for providing blood products. Knowing parameters, which affects people's decision to donate blood, will help to respond to this demand. This study was designed to assess the attitudes and barriers toward blood donation among volunteer donors in Mashhad (Northeast of Iran) during 2014-2015.

Methods: This cross-sectional study was performed in Iranian Blood Transfusion Organization (IBTO) centers in Mashhad. A total of 640 volunteer blood donors including first-time and frequent donors attended this study. The questionnaire was designed based on similar studies and the reliability and validity were controlled. A Questionnaire consisting of multi-choice questions was provided to participants. SPSS software was used for data analysis. The t-student test was used and $P<0.05$ was considered significant.

Results: Among the 640 participants, 80% of them completed the questionnaire and returned it. 474(92.5%) of participants were male and 38(7.4%) were female. 114 of donors were first-time donors and the others had donated blood before. The most important motivations for blood donation include altruism 249 (91.88%) and 76 (85.40%) in frequent and first-time donors respectively. Other factors like social. Lack of time (73.80%) was the most important barrier to blood donation among first-time donors.

Conclusion: The results showed that the most important motive and barrier for blood donation was altruism and lack of time**.** In other words, paying attention to the motivations or barriers of blood donation in donors can play an important role in attracting and retaining blood donors.

Keywords: Blood donation, Volunteer blood donor, Attitude, Barrier.

Introduction

Blood donation is a process that saves millions of lives around the world. Some of the most important cases of blood transfusion are performed in patients with thalassemia, sickle cell anemia, cancer, and trauma. Therefore, providing healthy and sufficient blood products is the main goal of blood transfusion services (1).

According to the WHO report, approximately 118.54 million blood donations are done all over the world, 40% of which are in high-income countries. In 64 countries, including Iran, 100% of blood donations are done voluntarily and unpaid; although in another 54 countries, more than 50% of blood donation is done by family/replacement or payment (1). As it was mentioned before, blood donation is completely voluntary in Iran, and the studies show that the amount of blood donation has an increasing trend, so that more than 26 donations are done per 1000 people individuals. In different studies, altruism has been known as the most common attitude among blood donors (2-4). Other motivations, such as awareness, evaluation of blood value, and health assessment have been reported by other studies(2, 5) ,while some factors such as fear(needle or excessive blood loss), worry about contracting chronic diseases, and not having enough time prevent blood donation (4, 6) .

It seems that the awareness of individuals' attitudes toward blood donation is useful for the encouragement of people to donate and for developing policies to increase the number of donors. Several studies have been done to know the attitudes toward blood donation in different areas. This study was also done to determine the demographic characteristics and inducements of donors in the northeast of Iran during 2014-2015.

Methods

Study population

In this cross-sectional study, 640 individuals, who were referred to the Mashhad (northeast of Iran) blood transfusion organization centers participated. They were chosen by random sampling. The sample size was calculated based on similar articles and the presence of 57% positive attitude(2).

Designing the questionnaire

The questionnaire was designed based on the article by Jalalian et al. The process of translation and cultural adaptation of the English version of the questionnaire into Persian was carried out in accordance with the published instructions and based on the international quality of life assessment standard contract, which includes translation steps, translation quality measurement, backward translation, and comparison of the English version with the Persian version. Two Persian translators translated the original version into the Persian language (forward translation), one of the translators was a specialist in laboratory hematology and blood bank and was aware of the concept of the questionnaire, and the other translator had no knowledge of specialized concepts. Then the translation was sent to a third translator, who was a Persian native speaker, and he combined the two translations. and then in a meeting with the presence of the translators, they were asked to rate the difficulty of the translation on a 100-point scale, with zero indicating complete quality. Unfavorable and 100 indicates a completely favorable and satisfactory quality of the translation. The criteria for deciding on the desired quality of translations were considered to be an average score higher than 90. For phrases and sentences that were found to be unsatisfactory translations, suitable alternatives suggested by translators 1 and 2 were used, and the translation quality score was calculated again. This process continued until the desired level was obtained. At the end of this stage, a Persian version was obtained, which, according to translators 1 to 3, had good quality. Then, two independent and blind translators did the translation backwards; In this way, the final version prepared was re-translated into English and then the original English version with the English version resulting from the translation of the experts in terms of the clarity of the translation,

not using specialized words, conforming to the Iranian culture and not changing the concepts in the original version by An expert committee including an expert in laboratory hematology and blood bank, an English translator, translators and authors, compared with each other and after the approval of the main designer of the questionnaire, the pre-final version was compiled (7). The questions were asked of the people under study in the form of multiple-choice questions. The questionnaire was divided into two parts: demographic questions and the causes of blood donation. The second part of the questionnaire was structured around the following themes: the cause for not donating blood among first-time donors, the decision-making process regarding future blood donation, personal attitude toward blood donation, the perceived importance of blood donation, general ideas and beliefs about blood donation, and the relationship between society and blood donation.

The scientific validity of the applied questionnaire was approved by content validity. Evaluation of content validity: the ability of the selected questions to reflect the characteristics of the concept to be measured, by calculating the relative coefficient of content validity (CVR) and content validity index (CVI) by ten experts in the field of laboratory hematology and blood transfusion sciences who have clinical experience and are affiliated with a reputable technical university.

Since reproducibility is a requirement of authenticity, the reproducibility of the tool was tested on 30 people from the target community in a two-week interval.

Statistical analysis

Statistical analyses were carried out with SPSS software [SPSS 25, IBM]. The t- t-Student test 73 was used, and $P<0.05$ was considered statistically significant. The results have been described in detail in the next section.

Results

Attitudes toward blood donation were assessed. Among the studied cases, 474(92.5%) were male and the rest were female. Only 114 (22.26%) of the blood donors was their first experience of blood donation and 314(77.73%) had a history of blood donation on numerous occasions, among all participant 4.30% were employed in medical system, 41.50% were self-employees, 13.20% were collegians and the rest had other jobs. Moreover, 42.34% (271 individuals) of participants had academic educations, and others were under diploma. Table 1 indicates the limitation of blood donation among first-time donors.

As it is obvious, the most common cause of not donating, which was mentioned by the first-time donors was inadequate time to refer to blood donation centers. Table 2 evaluates other contents of the questionnaire, categorized by the time of donation.

Statistical analysis showed that re-donation attempts ($P<0.0001$), blood donors' assessment from blood donation ($P=0.009$), attitudes toward blood donors ($P=0.03$), and efficacy of blood donation ($P<0.0001$) were significantly different between the first time and frequent donors.

Discussion

According to the rising daily need for blood products around the world, doing related studies to find encouraging and inhibiting factors of blood donation are necessary. From the point of view that Iran is one of the countries which blood donation is done free and voluntarily by donors, it is expected that Iranian blood donors' attitudes toward blood donation would be very different from objective groups in the other countries. Also, the studies conducted show that in some provinces in Iran, such as Khorasan Razavi, although the blood donation rate is low, it has a positive growth(8). In this cross-sectional study, we investigated the motivations of blood donation in 640 blood donors in Mashhad, Iran. Studies express that public awareness from blood donation benefits for donors and receivers, will encourage people to donate blood and will remove the barriers of donating (2) . Joseph et al.'s study on 113 volunteer blood donors showed that altruism (73.1%) was the most

important motivation(3). Our study showed that 85.40% (76) of first-time donors and 91.88% (249) of frequent donors, donate blood for altruistic purposes. Also, 68.90% (62) of first-time donors and 82.30% (251) of frequent donors believed that blood donation saves patients' life. Joseph´s study showed that 82.3% of donors donate blood due to the influence of their friends, 55.8% and 55% due to the influence of society and family (3).

Majdabadi et al.'s study showed that 50.2% of students of Semnan University of Medical Sciences, Iran, prefer to receive information about blood donation through social media (2). Alanzi et al.'s study in Saudi Arabia showed that 82% of donors receive blood donation requests from social media such as WhatsApp, and most of these requests and posts were from friends (43%) and family (28%)(9). Among participants in this study, 78.34% (47) of first-time donors and 68.86% (126) of frequent donors stated that social behavior, oblige, requisition and exhortation of a friend or friends have affected their decision about donation. In other words, it can be said that social behavior and social media have a great impact on calling and attracting donors in Iran. A significant part of the donors in our study stated that they have the ability to donate blood and they can do it if someone asks them to do. According to this finding, it can be said that by training this group and attracting them, they can be converted into continuous donors, and in this way, help to increase the blood products reserve.

Friends and relatives can affect people's decision for blood donation. As analysis demonstrated in this study, 69.50% (41) of first donors and 49.17% (59) of frequent donors were influenced by friends and relatives. Also, 80.90% (72) of the first-time donors and 63.70% (172) of the frequent donors stated that they would donate blood if anyone asked them to do. Basavarajegowda et al. confirmed this matter too. Their study showed that the influence of friends (46%) and family (8%) is one of the most important motivations for blood donation. Also, 47% of people did not donate blood, because they have not been asked to donate, 24% because of time constraints, and 9% for the family's opposition (10). Therefore, the results of our study, similar to previous studies, showed that friends and family and the request of others in blood donation have very high influence. Remarkable point is that 17.87% of the studied cases of this research cited that their families do not agree with their blood donation.

41.86% (36) of first-time donors and 57.75% (166) of frequent donors stated that they will donate blood in the next 6 months. By following these donors, it is possible to check whether they returned to donate blood after this time or not. If they did not donate blood again after this time, what was the reason and what was the barriers. By examining these factors, the ability to remove existing obstacles to blood donation.

Samrin et al, by examining 356 adults in order to evaluate the barriers and motivations of blood donation, showed that fear of needles (24.2%), fear of complications after donating blood such as chronic diseases (23.6%) and not having enough time (11.2%) were barriers for blood donation (6). The results of the study by Gimra et al also showed that the most important barriers to blood donation include fear of needle (38.5%), lack of time (4.6%) and unfit to donate (45.2%)(11). In our study, the most important barrier to blood donation in first-time donors was lack of time (73.80%). Also, other barriers included: fear of blood donation (8.80%), lack of blood donation centers near home or work (8.70%), fear of pathological complications (1.60%) and belief that there are enough donors (1.60%). There are many differences between people's ideas and causes of blood donation; it seems, that these differences are due to the studied population.

22.22%(20) of first time donors and 13.78%(42) of frequent donors in our study believed that blood donation causes hurt their bodies, while Edgren et al.'s study showed that blood donors have better health and the incidence of mortality and cancer in this group is lower(12).Therefore, it can be concluded that although blood donation in Iran has a growing trend and many efforts have been made, some people still have negative attitudes towards blood donation, and it seems that more education is needed for the members of the society as well as Schools and universities can be useful and attract more donors.

USA, Sweden and England are pioneer countries in blood donation and donors' researches; performed studies in the mentioned countries, revealed that donors sex ratio is different in every country. Most of the donor population is men and women are less willing to donate blood, but the gender gap is decreasing (13, 14). Also, in Iran, most of the blood donors are men, and women have little role in blood products preparation. In order to evaluate the factors encouraging or preventing blood donation in women, Kasraian et al. examined 1554 women in Shiraz, Iran. The results of their study showed that only 521 of them had a history of blood donation. The most important reasons for not donating blood in women included fear of anemia (68.4%) and fear of weakness and disease(66%)(15). In our study, 93.60% of the donors were men. On the other hand, women and men have equity participation in blood donation; while in Europe, in some countries such as Sweden, women consist greater percentage of donors compared to men (16).According to the high population of Mashhad city, to obtain more accurate data and reduce the errors which occurs due to questionnaire filling it is suggested to do similar studies in grater population in the form of an interview.

Conclusion

Knowledge of people's attitude toward blood donation and incentives to encourage blood donation is very practical. Every one's family and relatives affect their decision. It seems that more advertisements about blood donation will affect the family's opinion about blood donation. Although the results of this study concluded that blood donation history will affect donation decision, assessment and efficacy.

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Ethical approval

This study was approved by the ethics committee of Mashhad University of Medical Sciences with the approval ID IR.MUMS.REC.1401.206.

Conflict of interest

The authors declare no conflict of interest.

Author contributions

M.J. conceived the manuscript and revised it; F.S., F.S., M.A., N.S. and L.R. wrote the manuscript; M.A., F.S. and M.J. edited and reviewed the manuscript; M.A analysed data and performed statistical analysis, N.S. and L.F. did the data acquisition and N.S. prepared the tables.

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Data availability statement

All the data have been included in the manuscript and will be made available upon publication of the manuscript.

Table 1. causes of non-donation by first-time donors

Causes of non-donation	Percentage%
Lack of time	73.80 (84)
Lack of awareness from blood donation center's location	5.50 (6)
Lack of blood donation centers near the house and work	8.70 (10)
No need to my blood. There are enough blood donors	1.60 (2)
Pathological condition. Blood donation was harmful to me	1.60 (2)
Fair of blood donation	8.80 (10)
Total	100 (114)

Table2. Questioner content

Question		First time donors	Frequent donors	P-value
Plane to donate blood	I expect to donate blood in the next six months (I am not sure; I have to think)	34.06% (31)	13.75% (32)	P<0.0001
	I will donate blood in next six months (I am sure)	41.86% (36)	67.75% (166)	
	I will donate blood, but not in next six months	20.93% (18)	18.50%	
	I do not never donate blood	1.17% (1)	0.0% (0)	
	Total number of people who answer to this question	100% (86)	100% (245)	
Idea about blood donation	Blood donation is an altruistic affair, but I am not sure to donate blood	14.6% (13)	7.01% (19)	P=0.1
	Blood donation is an altruistic affair; I will donate if I can	85.40% (76)	91.88% (249)	
	Blood donation is an unnecessary affair.	0.00% (0)	0.36% (1)	
	I think blood donation is a wrong affair.	0.00% (0)	0.75% (2)	
	Total number of people who answer to this question	100% (89)	100% (271)	
Assessment from blood donation	My blood donation hurt my body	22.22% (20)	13.78% (42)	P=0.009
	My blood donation will survive patients' life	68.90% (62)	82.30% (251)	
	Blood donation will cause anemia	3.33% (3)	0.32% (1)	
	Blood donation will help me to lose weight.	5.55% (5)	3.60% (11)	
	Total number of people who answer to this question	100% (90)	100% (305)	
Social behavior and blood donation	People who are important to me think that I should not donate blood.	18.33% (11)	20.02% (44)	P=0.32
	Social behavior and others oblige me to donate blood.	3.33% (2)	7.10 % (13)	
	Social behavior and others ask me to donate blood.	78.34% (147)	68.86% (126)	
	Total number of people who answer to this question	100% (60)	100% (183)	
Attitudes	Doing my relatives' plea is important for me.	69.50% (41)	49.17% (59)	P=0.03
	My friends' blame is important for me.	1.69% (1)	1.66% (2)	
	Others' thinking about me is important for me.	28.81% (17)	49.17% (59)	
	Total number of people who answer to this question	100% (59)	100% (120)	
Efficiency	If anyone asks me to donate blood, I can do it.	80.90% (72)	63.70% (172)	P<0.0001
	I am weak to donate blood	2.24% (2)	1.48% (4)	
	I do not have enough blood to donate to others.	10.11% (9)	33.34% (90)	
	I do not have enough blood to donate to others.	6.75% (6)	1.48% (4)	
Total number of people who answer to this question		100% (89)	100% (270)	-

* The t- Student test 73 was used and, P<0.05 was considered as statistically significant

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