



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

Faeze Shahriyari¹ , Seyyede Fatemeh Shams^{2,3} , Mehrnaz Abdolalian¹
Narjes Soltani³ , Hashem Honari⁴ , Leila Rafaty Javanbakht⁵, Mohammadreza Javan^{6*}

1. Department of Hematology and Blood Banking, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran

2. Department of Hematology and Blood Banking, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

3. Cancer Molecular Pathology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

4. Imam Reza Educational, Research and Treatment Complex, Mashhad University of Medical Sciences, Mashhad, Iran

5. Birjand University of Medical Sciences, Birjand, Iran

6. Department of Anatomy, Physiology and Pharmacology, University of Saskatchewan, Saskatoon, Canada

* Correspondence: Mohammadreza Javan. Department of Anatomy, Physiology and Pharmacology, University of Saskatchewan, Saskatoon, Canada. Tel: +16395252572; Email: javaneee@gmail.com

Abstract

Background: Blood transfusion services are responsible for providing blood products. Knowing the parameters that affect people's decision to donate blood will help 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 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 multiple-choice questions was provided to the participants. SPSS software was used for data analysis. The Student's t-test was used, and $P < 0.05$ was considered significant.

Results: Among the 640 participants, 80% completed and returned the questionnaire. Of the participants, 474 (92.5%) were male and 38 (7.4%) were female. A total of 114 donors were first-time donors, and the others had donated blood before. The most important motivations for blood donation included altruism: 249 (91.88%) among frequent donors and 76 (85.40%) among first-time donors. Other factors such as social influences also played a role. Lack of time (73.80%) was the most important barrier to blood donation among the first-time donors.

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

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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 made worldwide, 40% of which are in high-income countries. In 64 countries, including Iran, 100% of blood donations are voluntary and unpaid, although in another 54 countries, more than 50% of donations are from family/replacement or paid donors (1). As mentioned before, blood donation is completely voluntary in Iran, and studies show that the rate of blood donation has an increasing trend, with more than 26 donations per 1,000 individuals. In different studies, altruism has been recognized as the most common attitude among blood donors (2-4). Other motivations, such as awareness, recognition of blood's value, and health assessment, have also been reported (2,5), while some factors such as fear (Of needles or excessive blood loss), worry about contracting chronic diseases, and lack of time prevent blood donation (4,6).

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

Methods

Study population

In this cross-sectional study, participants included 640 individuals who were referred to the Mashhad (Northeast of Iran) blood transfusion organization centers. They were chosen using random sampling. The sample size was calculated based on similar articles and the presence of a 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 Persian (Forward translation). One of the translators was a specialist in laboratory hematology and blood banking and was aware of the concept of the questionnaire, while 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. In a meeting with the translators, they were asked to rate the difficulty of the translation on a 100-point scale, with zero indicating completely unfavorable quality and 100 indicating completely favorable and satisfactory quality. The criterion for deciding on the desired quality of translations was an average score higher than 90. For phrases and sentences that were found

to be unsatisfactory, suitable alternatives suggested by the first and second translators 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 the three translators, had good quality. Then, two independent and blind translators did the backward translation. In this way, the final prepared version was re-translated into English. The original English version and the back-translated English version were compared by an expert committee-including a specialist in laboratory hematology and blood banking, an English translator, the translators, and the authors-in terms of clarity, avoidance of specialized words, conformity with Iranian culture, and consistency of meaning. After the approval of the main designer of the questionnaire, the pre-final version was compiled (7). The questionnaire was presented to the study participants in the form of multiple-choice questions. It was divided into two parts: demographic questions and causes of blood donation. The second part of the questionnaire was structured around the following themes: reasons for not donating blood among first-time donors, the decision-making process regarding future blood donation, personal attitudes 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. Content validity was evaluated as the ability of the selected questions to reflect the characteristics of the concept to be measured, by calculating the relative coefficient of content validity and content validity index with the help of ten experts in laboratory hematology and blood transfusion sciences, who had clinical experience

and were 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 at a two-week interval.

Statistical analysis

Statistical analyses were carried out with SPSS software [SPSS 25, IBM]. The Student's t-test was used, and $P < 0.05$ was considered statistically significant. The results are 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 were first-time donors, and 314 (77.73%) had a history of blood donation on numerous occasions. Among all participants, 4.30% were employed in the medical system, 41.50% were self-employed, 13.20% were students, and the rest had other jobs. Moreover, 42.34% (271 individuals) of the participants had academic education, and the others were below diploma level. Table 1 indicates the limitations of blood donation among first-time donors.

As shown, the most common reason for not donating, mentioned by the first-time donors, was inadequate time to attend blood donation centers. Table 2 evaluates other contents of the questionnaire, categorized by donation status.

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

Table 1. Causes of non-donation among first-time donors

Causes of non-donation	Percentage % (n)
Lack of time	73.80 (84)
Lack of awareness of blood donation center locations	5.50 (6)
Lack of blood donation centers near home or workplace	8.70 (10)
No need for my blood; there are enough blood donors	1.60 (2)
Pathological condition; blood donation was harmful to me.	1.60 (2)
Fear of blood donation	8.80 (10)
Total	100 (114)

Table 2. Questionnaire 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 the next six months (I am sure)	41.86% (36)	67.75% (166)	
	I will donate blood, but not in the next six months.	20.93% (18)	18.50%	
	I will never donate blood.	1.17% (1)	0.0% (0)	
	Total number of people who answered this question.	100% (86)	100% (245)	
Idea about blood donation	Blood donation is an altruistic act, but I am not sure I will donate.	14.6% (13)	7.01% (19)	$P = 0.1$
	Blood donation is an altruistic act; I will donate if I can.	85.40% (76)	91.88% (249)	
	Blood donation is unnecessary.	0.00% (0)	0.36% (1)	
	Blood donation is a wrong act.	0.00% (0)	0.75% (2)	
	Total number of people who answered 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 save patients' lives.	68.90% (62)	82.30% (251)	
	Blood donation will cause anemia.	3.33% (3)	0.32% (1)	
	Blood donation will help me lose weight.	5.55% (5)	3.60% (11)	
	Total number of people who answered 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 answered this question	100% (60)	100% (183)	
Attitudes	Doing my relatives' plea is important to me.	69.50% (41)	49.17% (59)	$P = 0.03$
	My friends' blame is important to me.	1.69% (1)	1.66% (2)	
	Others' opinions of me are important to me.	28.81% (17)	49.17% (59)	
	Total number of people who answered 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 too 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 cannot donate blood because of insufficient blood.	6.75% (6)	1.48% (4)	
Total number of people who answered this question		100% (89)	100% (270)	-

* The Student's t-test 73 was used, and $P < 0.05$ was considered statistically significant

Discussion

Given the rising daily need for blood products around the world, studies to identify encouraging and inhibiting factors of blood donation are necessary. Since Iran is one of the countries where blood donation is done voluntarily and free of charge, it is expected that Iranian blood donors' attitudes toward blood donation would differ from those in other countries. 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 trend (8). In this cross-sectional study, we investigated the motivations for blood donation in 640 donors in Mashhad, Iran. Studies indicate that public awareness of the benefits of blood donation for both donors and recipients encourage people to donate blood and helps remove barriers (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 the first-time donors and 91.88% (249) of the frequent donors donated blood for altruistic purposes. Moreover, 68.90% (62) of the first-time donors and 82.30% (251) of the frequent donors believed that blood donation saves patients' lives. Joseph's study also showed that 82.3% of donors donated blood due to the influence of friends, and 55.8% and 55% due to the influence of society and family, respectively (3).

Majdabadi et al.'s study showed that 50.2% of students of Semnan University of Medical Sciences, Iran, preferred to receive information about blood donation through social media (2). Alanzi et al.'s study in Saudi Arabia showed that 82% of donors received blood donation requests through social media such as WhatsApp, with most of these requests and posts coming from friends (43%) and family (28%) (9). Among the participants in our study, 78.34% (47) of the first-time donors and 68.86% (126) of the frequent donors stated that social behavior, obligation, requests, and encouragement from friends affected their decision to donate. In other words, social behavior and social media have a great impact on attracting donors in Iran. A significant part of the donors in our study stated that they were able to donate blood and would do so if someone asked them. According to this finding, it can be said that by educating this group and encouraging them, they can become regular donors, which would help increase blood reserves.

Friends and relatives can also affect people's decisions to donate blood. As shown in this study, 69.50% (41) of the first-time donors and 49.17% (59) of the frequent donors were influenced by friends and relatives. In addition, 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. Basavarajegowda et al. confirmed this finding as well. Their study showed that the influence of friends (46%) and family (8%) was one of the most important motivations for blood donation. In addition, 47% of people did not donate blood because they had not been asked, 24% due to time constraints, and 9% because of family opposition (10). Therefore, the results of our study, similar to previous studies, showed that friends, family, and others' requests have a very high influence on blood donation. A remarkable point is that 17.87% of the participants in this study stated that their families did not agree with their blood donation.

A total of 41.86% (36) of the first-time donors and 57.75% (166) of the frequent donors stated that they would donate blood in the next six months. By following these donors, it is possible to check whether they returned to donate blood after this time. If they did not, the reasons and barriers can be examined, making it possible to address existing obstacles to blood donation.

Samreen et al., by examining 356 adults 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 lack of time (11.2%) were barriers to blood donation (6). The results of the study by Gimra et al. also showed that the most important barriers included fear of needles (38.5%), lack of time (4.6%), and being unfit to donate (45.2%) (11). In our study, the most important barrier to blood donation among the first-time donors was lack of time (73.80%). Other barriers included fear of blood donation (8.80%), lack of donation centers near home or work (8.70%), fear of complications (1.60%), and the belief that there are enough donors (1.60%). The differences in people's reasons and ideas regarding blood donation may be due to differences in the studied populations.

A total of 22.22% (20) of the first-time donors and 13.78% (42) of the frequent donors in our study believed that blood donation harms their

bodies, while Edgren et al.'s study showed that blood donors have better health, with lower incidence of mortality and cancer (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 toward blood donation. It seems that more education is needed for society, and schools and universities can be effective in attracting more donors.

The USA, Sweden, and England are pioneering countries in blood donation and donor research. Studies conducted in these countries revealed that the sex ratio of donors differs by country. Most of the donor population is male, and women are less willing to donate blood, but the gender gap is decreasing (13,14). Similarly, in Iran, most blood donors are men, and women play a smaller role in providing blood products. To evaluate the factors encouraging or preventing blood donation among women, Kasraian et al. examined 1,554 women in Shiraz, Iran. The results showed that only 521 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, in Europe, in some countries such as Sweden, women comprise a greater percentage of donors compared to men (16). According to the high population of Mashhad city, to obtain more accurate data and reduce errors caused by questionnaire completion, it is suggested to conduct similar studies in larger populations using interviews.

Conclusion

Knowledge of people's attitudes toward blood donation and incentives to encourage donation is very practical. Everyone's family and relatives affect their decision. It seems that more advertisements about blood donation could influence families' opinions and encourage donation. Although the results of this study concluded that blood donation history affects the decision to donate, assessment, and efficacy, further attention to these factors can strengthen donor recruitment and retention.

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Ethical statement

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

Conflicts of interest

The authors declare no conflicts 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. analyzed data and performed statistical analysis; N.S. and L.F. conducted data acquisition; and N.S. prepared the tables.

Data availability statement

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

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