

## Factors Hindering the Healthy Subjects from Attempting Their First Blood Donation-A Cross-Sectional Study among The Citizens of Jeddah City, Saudi Arabia

Leena Alsaiani\*, Mohammad Qari, Nouf Al-Dawsari, Amir Khogeer, Danah Omran, Weaam Waggas, Randa Sultan, Amani Al Mojeb

Faculty of Medicine, Medical College, King Abdulaziz University, Jeddah-21441, Kingdom of Saudi Arabia. P O Box: 80215

\*Correspondence address: Leena Abdul-Aziz Alsaiani, Telephone: +966555899581, Email Address: lina.alsaiani@gmail.com; leenaalsaiani074@gmail.com

### ABSTRACT

**Background and Aims:** Blood donation (BD) is described as altruistic behavior and one of the life-saving practices. The deficit of blood supply from BD has become a global concern. Knowledge, attitude, practice, and motivation play a key role in BD. This study is aimed to determine the factors that hinder the healthy individuals who have not donated blood yet from BD, by exploring the demographic and other variables among the citizens of Jeddah city, Kingdom of Saudi Arabia (KSA).

**Methods:** A cross-sectional descriptive study was carried out at Faculty of Medicine, King Abdul-Aziz University (KAU), Jeddah, KSA, between June 01, 2016 to June 30, 2016. The study included 327 participants who were selected by convenient random sampling in the Jeddah City. The data was collected by using the online distribution of the previously validated questionnaire.

**Results:** Half of the participants (51.1%) have good knowledge about BD. More than two-thirds of participants showed a positive attitude towards BD. Majority of participants (87.7%) claimed that they will donate blood if the recipient is a friend or relative. The most chosen reasons for not donating blood among participants were BD did not cross their minds (23.9%), no time for BD (17.1%) and fear of needles (13.8%). Mobile blood campaign (84.4%) and one day off (83.2%) were important motivating factors for most of the participants. Almost half of the participants (52.29%) mentioned that BD should be non-remunerable, 26.61% agreed that remuneration is a motive and 21.10% believe that any form of gift is acceptable as a motivating factor for BD. **Conclusion:** Although most of the participants have good knowledge and positive attitude towards BD, still numerous potential and eligible donors evade BD. More awareness and motivational programmes are required to bring more individuals to the pool of regular donors.

**Keywords:** Attitude, blood donation, knowledge, motivation, practice, Saudi Arabia.

### INTRODUCTION

Blood donation (BD) is an imperative element of health care <sup>[1]</sup>. It is a process of collection of blood, plasma or other blood components from a donor and then transfusing it into recipient's body <sup>[2]</sup>. Blood transfusion has an essential role in the management of various medical conditions such as bleeding disorders, different surgical and medical procedures, trauma resulting from accidents, and variety of acute and chronic hematological treatments like cancer therapy <sup>[1, 3]</sup>. World Health Organisation (WHO) Global Database on Blood Safety (GDBS) reports that from 176 countries nearly 112 million blood donors are donating blood annually. Although blood transfusion improves health and sustains lives, still an abundant number of patients requiring transfusion have delayed access to safe blood. To meet the increasing global demands of blood transfusion, there is a dire need for health care services to consider the crucial role of blood donation carefully <sup>[3]</sup>. Therefore, the deficit of blood supply from BD has become a worldwide concern <sup>[4]</sup>.

Generally, blood donors are categorized into three categories: voluntary, family replacement or involuntary and paid donors. Voluntary donors are those who donate blood of their own will without receiving any compensation or rewards. Replacement donors are also unrewarded and they donate blood when their family member or friend requires the blood transfusion while the last category is paid donors, who are remunerated in the form of cash or in kind which could be considered a substitute for money <sup>[5]</sup>. Among the three types of blood donors, voluntary unrewarded donors are considered as an appropriate and safe source of blood donation with respect to the possible disease transmission through blood transfusion <sup>[6, 7]</sup>. These donors give blood for altruistic considerations and as an act of generosity to the society. There has been a higher incidence of transfusion-transmitted infections among paid donors than non-remunerated volunteer group <sup>[7]</sup>.

Pertaining to the selection of the blood donors, Council of Europe and WHO has recommended that blood and other components of

blood should only be collected from non-remunerated repeat, voluntary donors who could facilitate blood bank to maintain blood supplies and set up smooth transfusion. However, the recruitment of safe and low-risk donors has become a challenge, particularly in developing countries where cultural and traditional beliefs and lack of knowledge and technical expertise can create obstacles to achieve a truly voluntary BD system<sup>[6]</sup>. Both, developed and developing countries have complications with the voluntary non-remunerated BD system. For the voluntary donation of blood, motivation plays a key role in encouraging donors and helping them to rule out the obstacles which they are facing for giving the blood<sup>[4]</sup>. The motivating factors for people to donate blood include awareness and positive attitude towards blood donation, altruistic behaviour, empathetic concern, social responsibility and good satisfaction and belief on health services<sup>[8-13]</sup>. On the other hand, there are certain factors that can limit or hinder the people in taking the decision for donating blood. These limiting factors include poor knowledge and fallacy about BD, the concern of pain, personal attitudes and unsatisfactory quality of the health services provided to donor<sup>[14,15]</sup>.

To help in recruiting more blood donors, it is very necessary to recognize the limitations and motivating factors for a donor in BD<sup>[12]</sup>. Several studies have been carried out in Riyadh, the capital of Kingdom of Saudi Arabia (KSA) about knowledge, attitude, practice, misconception, and motivations towards blood donation. These studies reported that non-donor participants have poor knowledge about the basics of BD and the motivating factors for BD varied among the donors<sup>[16, 17]</sup>. In 2014, a study conducted on public awareness of BD in central KSA concluded that the prevalence of BD was less than favorable level<sup>[18]</sup>. While another study carried out in Riyadh, KSA, reported that all respondents (donors) showed a positive attitude towards BD and recognized its importance for the healthy survival of patients<sup>[19]</sup>. A study conducted in Greece reported that both donors and non-donors have satisfying knowledge about BD and the rate of voluntary BD is high among participants with primary school education. It has also observed the lack of safety as the main hindrance to BD in Greece<sup>[20]</sup>. Interestingly, an empirical study has evaluated the differences in social representation of BD between donors and non-donors in Italy and has found that non-donors have enormous misconceptions and poor level of awareness referring to negative aspects of BD while

donors had a good level of awareness and positive attitude towards blood BD<sup>[21]</sup>.

Much research has been carried out to evaluate knowledge, attitude, motivation, and practice among people towards BD<sup>[2,22-30]</sup>. However, inadequate research has been carried out to determine the obstacles and difficulties which prevent the healthy individuals from donating blood, particularly in KSA. Therefore, this cross-sectional study is aimed to determine the factors that hinder the healthy individuals who have not donated blood yet from BD. We further explored the knowledge, attitude, practice, and motivations of people towards BD among Saudi population.

## MATERIALS AND METHODS

This cross-sectional descriptive study was carried out at Faculty of Medicine, King Abdul-Aziz University (KAU), Jeddah, KSA, over a period of one month (June 01, 2016 to June 30, 2016). It includes 327 (n=327) participants, who are citizens of Jeddah city. All the participants were non-donor healthy individuals who have not donated the blood earlier and are eligible donors for BD. This study was carried out with the approval of the Unit of Biomedical Ethics, King Abdul-Aziz University, Jeddah, KSA in accordance with the guidelines of the KAU. These guidelines comply with the national and international laws and policies of National Institutes of Health USA.

Data was collected by using a previously validated self-designed questionnaire, validated by the Faculty of Medicine, KAU. The questionnaire contains questions covering the following six groups of variables:

- (i) Demographic data-4 questions.
- (ii) Knowledge about blood donation-9 questions.
- (iii) Attitude towards blood donation-4 questions.
- (iv) Practice of donation and its effects-5 questions
- (v) Reasons for not donating blood-14 questions.
- (v) Motivations for blood donation-4 questions.

The questionnaire was distributed online electronically among all the participants after obtaining their proper electronic consent. Most of the questions in the questionnaire were presented in multiple choice form. For each question, the participant had to choose only one possible response. All the questions in the questionnaire were answered by the participants and the filled questionnaire were recollected for subsequent data analysis. **The study was done after approval of ethical board of King Abdulaziz university.**

### Statistical analysis

Statistical analysis was done by using SPSS (statistical package for social science) version 22.0 (IBM Company, NY, USA). Data was expressed as percentage. Appropriate correlation was analyzed by one-way analysis of variance (ANOVA) followed by T-test for further comparisons. A *P*-value of less than 0.05 was considered as criterion for a statistically significant difference.

## RESULTS

### Demographic characteristics

The total of 327 (100%) participants, 228 (69.7%) females and 99 (30.3%) males were enrolled during the period of this study. The demographic characteristics of all the participants are presented in Table 1.

### Knowledge about blood donation

As far as knowledge about BD is concerned it is found that 86.9% of participants knew their blood group and 66.4% had good knowledge about the type of blood group that can be donated to the needy recipient. More than half of the participants (56.9%) replied correctly to the minimum age for BD. Around half of the participants (49.5%) and (50.5%) identified correctly the minimum weight and minimum interval between two times for BD, respectively. More than half of the participants (53.8%) were familiar with the locations of blood banks in their community. Half of the participants (50.2 %) thought that BD would not cause any health problems such as human immunodeficiency virus (HIV). We also observed that 43.3% participants were not aware if diabetic or hypertensive patients can donate their blood. Most of the participants (81.7%) confirmed that blood bank screens blood donors before donation (Table 2).

### Attitude towards blood donation

Pertaining to attitude towards BD, a major segment of the participants (63%) strongly agreed or agreed that BD is part of altruism, 54.1% strongly agreed or agreed that BD is a religious duty. More than two-thirds of participants (74.6%) strongly agreed or agreed that BD is a national duty and 80.2% strongly agreed or agreed that BD is a healthy habit (Table 3).

### Practice of blood donation among the participants

Majority of the participants (87.8%) replied that they will donate blood if the recipient is a relative or friend, while 10.7% and 1.5% responded that they will call others to donate for them and buy

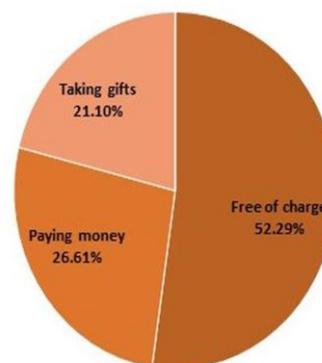
blood for them, respectively. Moreover, 74% participants reported that they will donate if they visit a blood bank and observe the procedure of donation. Most of the participants (88.4%) claimed that they encourage their relatives and friends to donate blood.

### Reasons for not donating blood

Most of the participants (23.9%) chose that BD did not cross their mind, as a reason for not donating blood and 17.13% mentioned that they had no time for BD. While 13.8% reported that they were afraid of needles and 12.8% mentioned that they did not fit the criteria for BD. No blood bank, lack of awareness and being a smoker were the least selected reasons (0.9%) (Table 4). The relationship between the reasons for not donating blood with age, marital status, level of education and occupation was not established. There is no significant correlation between these parameters and the reasons of not donation blood ( $P > 0.05$ ). As far as gender is concerned most of the females (60.3%) mentioned fear of disease as the reason for not donating blood while only 39.7% males opted for this reason ( $P < 0.003$ ). This indicates that there is significant relation between the gender and the reasons for not donating blood.

### Motivation for blood donation

More than half of the participants (52.6%) mentioned that media encourages people for BD. More than two-third of participants (84.4%) reported that mobile blood campaign is strong motivating factor and 83.2% agreed that one day off is another important motivating factor for BD. Pertaining to remuneration for donating blood, 21.10% participants agreed with token gifts, 26.61% agreed with paying money and 52.29% agreed free of charge as motivating factors for BD (Figure 1).



**Figure 1.** Tendencies towards accepting the different methods of remuneration for blood donation.

**TABLES**

**Table 1. Demographic characteristics of the participants (n=327)**

	<b>Demographic characteristics</b>	<b>Percentage (%)</b>
<b>Age</b>	17-20 years	22.30%
	21-30 years	60.20%
	31-40 years	13.50%
	41-50 years	4.00%
<b>Gender</b>	Male	30.30%
	Female	69.70%
<b>Marital status</b>	Single	66.40%
	Married	33.60%
<b>Level of education</b>	Below high school	0.60%
	High school	20.20%
	University	70.60%
	Higher studies	8.60%
<b>Occupation</b>	Student	56.00%
	Employed	29.40%
	Unemployed	14.60%

**Table 2. Knowledge of participants about blood donation**

<b>Question</b>	<b>Correct answer (%)</b>	<b>Wrong answer (%)</b>	<b>Do not know (%)</b>
What is your blood group?	85.9%	0	14.1%
What is the blood group type that you can donate to any individual?	66.4%	7.3 %	26.3%
What is the minimum age for blood donation?	56.9%	.9%	42.2%
What is the minimum weight for blood donation?	49.5%	11.4%	39.1%
What is the minimum interval between two times for blood donations?	50.5%	8.3%	41.2%
Do you know where is the location of blood bank in our community?	53.8%	46.2%	0
Do you think that donating blood can cause health problems such as HIV?	35.5%	50.2%	14.3%
Can diabetic or hypertensive patient donate blood?	20.8%	35.8%	43.4%
Does the blood bank screen donors before blood donation?	81.7%	1.8%	16.5%

**Table 3. Attitude of participants towards blood donation**

<b>Parameter</b>	<b>Attitude</b>				
	<b>Strongly agree (%)</b>	<b>Agree (%)</b>	<b>Do not know (%)</b>	<b>Disagree (%)</b>	<b>Strongly disagree (%)</b>
Do you think blood donation is a part of altruism?	20.50%	42.50%	9.20%	22.00%	5.80%
Do you think blood donation is a religious duty?	15.60%	38.50%	20.20%	23.50%	2.20%
Do you think blood donation is a national duty?	22.90%	51.70%	9.80%	14.40%	1.20%
Do you think blood donation is a healthy habit?	29.10%	51.10%	15.50%	4.00%	0.30%

**Table 4. Participants' reasons for not donating blood.**

Reasons	Frequency (N)	Percentage (%)
Did not cross your mind.	78	23.9%
No time.	56	17.1%
Fear of needles.	45	13.8%
Does not fit the criteria.	42	12.8%
Difficulty in accessing to donation centres.	39	11.9%
Fear of diseases.	25	7.6%
Fear of blood.	13	4.0%
Believe that "there is no need for blood donation"	10	3.1%
Fear of hospital environment.	9	2.8%
No reason.	4	1.2%
Parents' disapproval.	3	0.9%
Lack of awareness.	1	0.3%
No blood bank.	1	0.3%
Smoker.	1	0.3%
Total	327	100%

N=number of participants.

## DISCUSSION

Health care providers are still facing difficulties in providing adequate blood to meet the demands of the needy patients. With the expansion in population size and increase in the establishment of medical care centers in Saudi Arabia, the raising need of blood has increased the demand for more blood donors. The current study has been carried out in Jeddah city to determine the obstacles that hinder the healthy individuals from donating blood, by measuring their knowledge, attitude, and motivations towards BD among Saudi population. This study also tried to determine the reasons for not donating blood, and to obtain information and recommendations which would help the health system to maintain an adequate blood supply by recruiting more blood donors.

In this study, overall 51.1% (n=167) participants showed good knowledge, 29.4% (n=96) showed high knowledge and 19.6% (n=64) showed poor knowledge about BD. These results indicate that the information is available but there is the need for better dissemination of information and awareness regarding BD among non-donors [17, 18]. This availability of knowledge might be due to more BD campaigns in the community where the study was conducted, as currently several awareness campaigns are being conducted by many different health institutes in Saudi Arabia. Contrary to our results, a study conducted in Jordan reported the relatively inadequate overall knowledge about BD among the people [22]. Another study conducted in Nigeria among students stated that 64.8% of the participants have good knowledge about BD but there is no relationship between knowledge and

demographic criteria [25]. It has been observed that demographic characteristics (level of education, gender and occupation) influence the knowledge about BD, with the knowledge higher in females than males. Contrarily, a study carried out in India reported that males have higher knowledge about BD than females, which indicates that demographic characteristic (gender) has a significant correlation with the knowledge about BD [14]. This study also determined that students have higher knowledge about BD than employed and unemployed people. These findings advocate that there is satisfactory awareness about BD in the educated class of the community. This agrees with a study conducted in Bangladesh among students which reported that majority of students have good knowledge about BD [3].

In the current study, it was observed that most of the participants have a positive attitude towards BD and males have a more positive attitude than females. A statistically significant relation was found between attitude towards BD and demographic criteria (age, occupation and marital status). It has been found that participants who are in the age group of 31-40 years, employed and married have the highest positive attitude towards BD. The current study also described that 80.2% and 74.6% of our study participants agree that BD is part of healthy habit and a national duty respectively. Moreover, 45.1% and 63% of the participants believe that BD is a religious duty and is part of altruism respectively. To support our results, a study conducted in Riyadh, KSA reported that majority of the participants (96%) and (82.6%) agreed that BD is part of altruism and a national

duty respectively <sup>[18]</sup>. Inconsistency to our results another study carried out in Riyadh, KSA described that 71% participants consider BD as a religious duty <sup>[17]</sup>. Contrary to our observations, a study carried out in Nigeria confirmed that 20.3% of their study population could not donate blood due to religious beliefs <sup>[23]</sup>. Several studies have reported that non-donors have a negative attitude towards BD which indicates that there is a significant correlation between the attitude and BD <sup>[3,26,27]</sup>.

In this study pertaining to practice of BD, majority of the participants (87.7%) claimed that they will donate blood if the recipient is a friend or relative. Corresponding to our results, a study conducted in Pakistan reported that participants stated that they would accept to donate blood if the person in need is one of their family members, relatives or friends <sup>[28]</sup>.

The present study also reported that most chosen reason (23.9%) by participants for not donating blood is that BD did not cross their minds, while 17.1% participants mentioned that they had no time for BD. Similar reasons for not donating blood were reported in a study conducted in Riyadh, KSA <sup>[17]</sup>. In this study, other reported reasons for not donating blood include fear of hospital environment, diseases, blood, and needles. This observation is supported by the previous studies, where the fear of contracting infections such as HIV and hepatitis was frequently reported reason by participants from North India, Canada, Pakistan and Nigeria <sup>[14,25,28,30]</sup>. These results define the diversity of cultures and interests, and the quality of health services provided by the medical institutes around different countries.

During the evaluation of motivating factors for BD, this study reported that 52.6% participants believe that media encourages people for BD. Contrarily, a study carried out in Jordan described that 60.2% of the studied population claimed that media does not encourage people for BD but they are more influenced by their friends <sup>[22]</sup>. This difference in the perception of people towards the role of media in BD might be due to the variable influence of media on different communities. Moreover, 84.4% participants believe mobile BD campaign as a strong motivating factor and 83.2% agreed that one day off is another important motivating factor for BD. These findings are in correspondence to the study carried out in Riyadh, KSA which reported that 79.1% and 81.4% participants agreed that mobile BD campaign and one day off are motivational factors for BD, respectively <sup>[17]</sup>. Since both these studies have been conducted in Saudi Arabia and are declaring almost

invariable results, so it prompts that there is a dire need to focus on motivational factors for BD. Almost half of the participants in the current study claimed that donating blood should be free of charge while the other half believe that paying money and taking gifts are motivating factors for BD. Pertaining to the motivation for BD, a study conducted in Greece reported that most participants agreed that paid day off from their work, unpaid blood tests and fast accessibility to blood if needed in the future are their preferable motivations <sup>[29]</sup>.

### Study Limitations

There are several limitations to this study. The questionnaire was disturbed online, hence possible biased selection cannot be ruled out. The sample size would have been larger to carry out a more distinctive study. The less number of male participants in our study may not be representative of the whole male population in Saudi Arabia, and this would affect the generalizability of the results.

### CONCLUSION

We concluded that despite most participants have good knowledge and positive attitude towards BD, still they do not donate blood. This study substantiates that BD is not mainly based on the knowledge and attitude, as both are found satisfactory generally among non-donors in the study population. Mobile BD campaigning and one day off were the most reported motivating factors for BD. More BD campaigns should be organized to increase the motivation for BD among the common masses, thus to reach the maximum number of donors. Furthermore, aggressive engagement of social media should be the priority than the broadcasts and advertisements through traditional media. Further longitudinal studies are required to evaluate the donors' intentions and experiences regarding BD procedures, and their willingness to become regular donors.

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