



Original Research Article

Blood donation among Al-Ahsa population in Saudi Arabia: Attitudes, practice and obstacles

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The present study was carried out to assess the practice of blood donation among different demographic groups of Al-Ahsa population and to understand the obstacles that hinder people from blood donation. A cross sectional study was employed with data collected using a structured web-based questionnaire. The results showed majority (631; 56.1%) of the participants were non donors. Donors were classified into two groups; 115(28.8%) of donors who donated for the first time, 284(71.2%) of donors have donated more than one time. Males were more willing to donate in comparison to females (p value=0.00) OR=11.5(95% CI, 7.82-16.9). Those who were above age of 34 were more likely to donate than those below the age of 34 (p value = 0.00) OR= 2.27 (95% CI, 1.73-2.99). The majority (196; 31%) of the non-donors mentioned that they did not have reasons for not donating. Majority (387; 62.1%) of non-donors would donate if the need for blood donation was for someone they care about. Regarding this present study, blood donation is low, further effective strategies such as media and changing work time of blood banks could improve blood donation in Alahsa.

Key words: Blood donation, attitude, Alahsa, Saudi Arabia, practice, obstacles.

INTRODUCTION

Blood transfusion is a vital part in the medical field. Many medical diseases, surgical operations, and potentially life threatening conditions require blood transfusion on the basis of their management. Although the medical field is rapidly evolving, and despite the vast advancement in medicine, there is no ideal substitute for blood (Salaudeen and Odeh, 2011). As it remains without any ideal substitute, blood donation is the only source to obtain blood, and as a result, donors are the key players in this process. Donors are usually of three types; volunteer donors, replacement donors, and paid donors (WHO and International Federation of Red Cross and Red Crescent Societies, 2010). Volunteer donors are those who donate without anticipation of any form of compensation. Replacement donors are those who donate for relatives or someone they know and care about and finally; Paid donors are those who get paid to donate. WHO recommends that every country should implant policies, systems, and structures to guarantee integrity of all aspects of donation in order to

achieve adequacy and to maintain availability of blood whenever needed (World-Health-Organization, 2011). Developed countries have well-established voluntary-based blood transfusion systems, and are able to meet blood demands (WHO and International Federation of Red Cross and Red Crescent Societies, 2010). However, many developing countries are struggling to achieve this fate (WHO and International Federation of Red Cross and Red Crescent Societies, 2010). In the Kingdom of Saudi Arabia, blood transfusion system is basically a hospital-based blood banking system, in which many hospitals across the country have their own blood banks to supply their requirements, and therefore, the blood banks are obligated to maintain safe and adequate blood supply (Abdel et al., 2016). The number of donors in the Kingdom of Saudi Arabia per 1000 ranges from 10 to 19.9, of which 25 to 49.9% are volunteer donors (World-Health-Organization, 2011). Most of the donors in the Kingdom are replacement donors that is, they are composed of relatives and friends

Table 1. Demographic data of the respondents

Gender	Single	Married	Divorced No (%)	Widowed	Total
Male	397 (54.8)	323 (44.6)	3 (0.4)	1 (0.1)	726 (64.5)
Female	207 (52.7)	179 (45.5)	6 (1.5)	1 (0.3)	398 (35.4)
Total	604 (53.7)	502 (44.7)	9 (0.8)	2 (0.2)	1124

who donate for a specific patient (Bashawri, 2002). Volunteer donors have high return rate and most of them become regular donors (WHO and International Federation of Red Cross and Red Crescent Societies, 2010). Therefore, the blood banks need to recruit volunteer donors and turn them into long-term regular donors to sustain blood supply.

The need for blood transfusion is high in the eastern province of the Kingdom known for its high prevalence of inherited blood diseases that require blood transfusion in their management. Diseases like sickle cell disease (SCD), thalassemia, and glucose-6-phosphate dehydrogenase (G6PD) deficiency (Alabdulaali, 2007) are common.

We aim to assess the practice of blood donation among different demographic groups of Al-Ahsa population; understand the obstacles that hinder people from donation and those that motivate people to donate; and to correlate the level of knowledge and misconception about the practice of blood donation.

MATERIALS AND METHODS

A cross sectional study about attitude and practice aspects towards blood donation, which involved 1124 participants among Al-Ahsa population was carried out. A structured web-based Arabic questionnaire was used to collect the data in January and February 2016 from male and female respondents of different age groups, and educational levels. The questionnaire contained 5 sections with 31 multiple choice questions which were distributed as follows: demographic data knowledge about blood donation, practical aspects with respect to blood donation, myths of blood donation, and lastly attitude regarding blood donation. The participants were given a score out of 13 based on their knowledge and correct answers, and was assessed in relation to their practice of blood donation. 5 blood donation myths were selected (score out of 5, each correct perception was given 1) and assessed in relation to demography, blood donation, knowledge and practice. The completion of the questionnaire required approximately 5 minutes. All participants were informed that all the information would be kept confidential and used only for the research purpose. Data analyses was done using SPSS,

chi-square and t-test.

RESULTS

Demographic data and blood donation profiles

There were 1124 participants of which 726 were males and 398 were females. The average age of participants is 28.7 ± 9.78 with 604 being single and 502 were married (Table 1).

As per the blood donation profiles of the participants, 35.9% are donors, 56.1% non-donors and 8.0% tried to donate blood but were rejected for various reasons (Table 2; Figure 1). 28.8% of the donors were first-time donors while 71.2% have donated more than once.

370 (51%) of males were donors and 302 (41.6%) were non-donors; 54 (7.4%) tried to donate but were rejected (Table 3). Regarding females, 33 (8.3%) were donors, 329 (82.7%) were non-donors and 36 (9%) tried to donate but were rejected. Males tended to donate often (74.7%) than females (31.3%) (p value = 0.00). Thus, it is shown that males were more willing to donate in comparison to females (p value=0.00) OR=11.5 (95% CI, 7.82-16.9) (Figure 2).

Regarding marital status, married couples (64.3%) were more likely to donate than single people (39.7%) (p value = 0.00) OR= 2.58 (95% CI, 2-3.33). Average age of donors was 31 ± 9.97 , while for non-donors it was 26.7 ± 9.03 . Those who were above 33 years were more likely to donate than those below and equal 33 years (p value = 0.00) OR= 2.27 (95% CI, 1.73-2.99).

Blood donors' profiles

The average age at first donation was 21.77 (IQR 18-24) with no significant difference between males and females or single- and multiple-time donors. 70 (62.5%) of the single-time donors had voluntarily donated of which 28 (25%) were for relatives or friends, 11 (9.8%) had donated in response to crisis (Figure 3). Of the single time donors, 88 (78.6%) would donate again voluntarily and 19 (17%) would donate only if relative and friends were in need; 5 would not donate again. Regarding single-time donors, 85%

Table 2. Reasons for not donating

Reasons	Male	Female	Single	Married	Total
	No (%)				
No specific reasons	102 (34.3)	94 (29)	119 (30.7)	74 (32.9)	196 (31.6)
No one asked me to donate	67 (22.6)	97 (29.9)	106 (27.3)	57 (25.3)	164 (26.4)
I'm not qualified	54 (18.2)	86 (26.5)	73 (18.8)	65 (28.9)	140 (22.5)
Shortage of time	57 (19.2)	34 (10.5)	66 (17.0)	24 (10.7)	91 (14.7)
Fear of feeling unwell/fainting	48 (16.2)	30 (9.3)	46 (11.9)	31 (13.8)	78 (12.6)
Fear of needles	31 (10.4)	27 (8.3)	42 (10.8)	16 (7.1)	58 (9.3)
Difficulty to find transportation	8 (2.7)	41 (12.7)	34 (8.8)	15 (6.7)	49 (7.9)

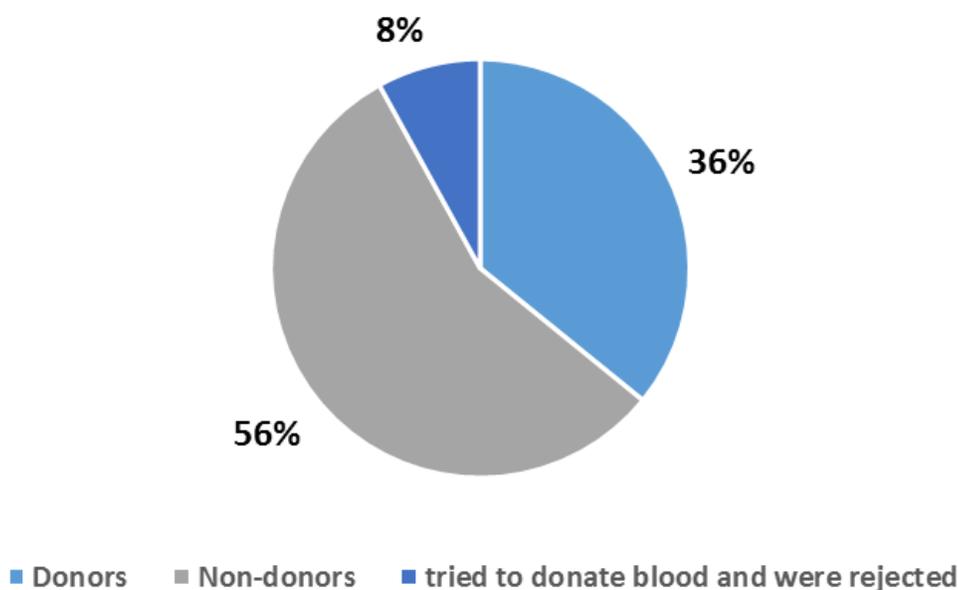


Figure 1. Donation behaviors among participants

This shows the percentage of blood donor, non-donor and those who tried donate but were rejected among our participants.

of females and 57.1% of male would donate again voluntarily (p value = 0.01).

327 (82%) of donors were satisfied with the services and attitude of the staff while 72 (18%) were not satisfied as

they were displeased by the waiting time or unpleasantness of the physical environment. Regarding the number of donations for multiple time donors, the average was 6.5 times (IQR = 3 - 8).

Table 3. Do you know anyone who donates blood?

Participant	Male ^a	Female ^b	Donor	Non-donor	Tried to donate but rejected	Total (a + b)
	No (%)					
Parents	101 (13.9)	62 (15.6)	64 (15.9)	87 (13.8)	12 (13.3)	163 (14.5)
Relatives	395 (54.4)	247 (62.1)	225 (55.8)	360 (57.1)	57 (63.3)	642 (57.1)
Friends	514 (70.8)	57 (14.3)	310 (76.9)	213 (33.8)	48 (53.3)	571 (50.8)
School friends	226 (31.1)	52 (13.1)	146 (36.2)	106 (16.8)	26 (28.9)	278 (24.7)
Acquaintance	204 (28.1)	56 (14.1)	120 (29.8)	115 (18.2)	25 (27.8)	260 (23.1)
No one	45 (6.2)	66 (16.6)	19 (4.7)	90 (14.3)	2 (2.2)	111

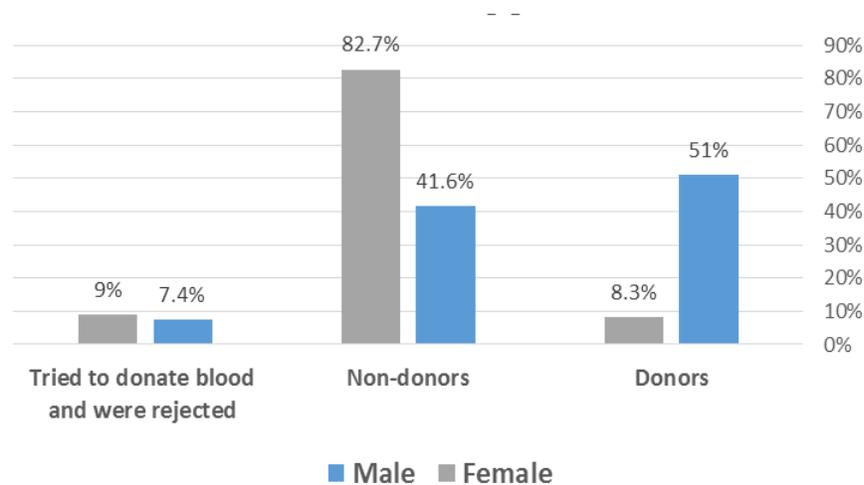


Figure 2: Donation according to gender

This shows that a large percentage of male are donors while just 8% of females are donors with most of them are non-donors.

Reasons for not donating

196 (31.6%) of non-donors mentioned that they did not have reasons for not donating, 164(26.4%) did not donate because no one asked them to and 140(22.5%) did not donate because they thought that they were not qualified (Table 3). Other reasons were: did not have time to donate, fear of feeling unwell or fainting, fear of needles, difficulty finding transportation, risk of becoming infected with transmissible diseases like HIV/hepatitis, fear of discovering something wrong with them, not satisfied with

the services of blood bank and other minor reasons. The most common reasons stated by males and females were no specific reasons and no one asked them to donate and they were not qualified (Table 2).

The most common reason for rejecting donors was health problems and low weight. Females were more likely to face difficulty in finding transportation to blood banks in comparison to males. The most common reasons stated by married and single participants were no specific reasons and no one asked them to donate (Table 2). 37.0% of participants above 33 years and 19.4% below 33 years

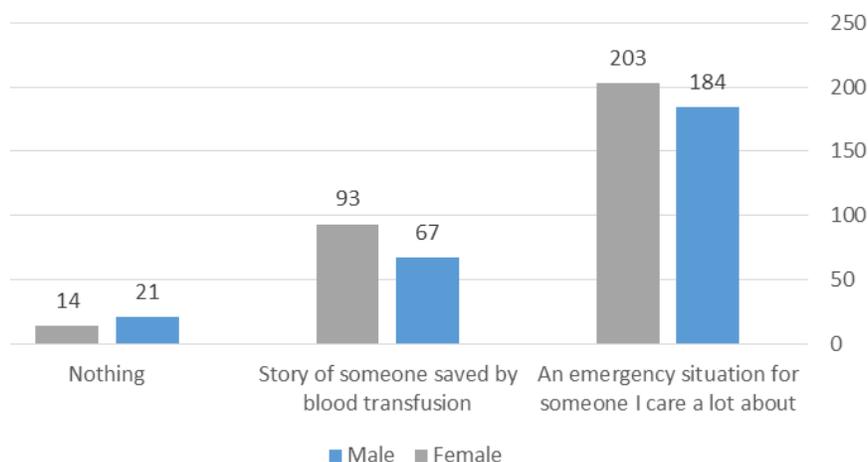


Figure 3. What would make a person donate?

stated that they were not qualified to donate.

What would make a person donate?

Figure 3 and Table 2 show reasons that would make persons donate. Most non-donors would donate blood if it was for someone they care about and if they hear a story about someone who was saved by a blood donation. Others would donate if their friends asked them to donate together or knowing how a process of blood donation works. However, this study revealed that participants would donate if they knew that they would obtain concrete advantages (educational credits, blood tests or free meal). Females would donate if they hear a story of someone saved by blood transfusion in comparison to males. Other reasons that would make non-donor to donate are almost the same between males and females and are thus:

Effect of knowing a donor

111 (9.9%) of participants did not know anyone who had donated blood. Others knew someone who had donated blood either relatives, friends, Acquaintance or parents with percentage of 57.1%, 50.8%, 23.1% and 14.5% respectively. Regarding males, 514 (70.8%) of them had a friend who had donated blood, 395 (54.4%) had a relative who had donated blood, while 45 (6.2%) did not know any donor. For females, 247 (62.1%) of them had a relative who had donated blood, 62 (15.6%) had parents who had donated blood, 57 (14.3%) had a friend who had donated blood, while 66 (16.6%) did not know any donor.

Regarding donors, majority (310; 76.9%) had a friend who had donated blood while 360 (57.1%) had a relative who had donated blood. For non-donors, 417 (66.3%) had a relative and 261 (41.5%) had a friend who had donated blood. In general, 384 (95.3%) of donors knew someone who had donated blood but 629 (87.2%) of non-donors knew someone who had donated blood. Knowing someone

who had donated blood, will make a person more likely to donate (p value = 0.00; OR= 2.96; 95% CI, 1.78-4.92). The chance of being a donor increases if your friend is a donor (p value = 0.00; OR= 5.87; 95% CI, 4.45-7.75), but it will be the same if your parents ($p=0.28$) or relatives ($p=0.18$) are donors.

Religion and donation

943 (83.9%) agreed that religion encouraged blood donation while 164 (14.6%) did not know and only 17 (1.5%) did not agree on this. 365 (90.6%) of donors agreed that religion encouraged blood donation in comparison to 578 (80.2%) of non-donors (P value = 0.00). 266 (91.4%) participants above and 645 (81.2%) participants below the age of 33 believed blood donation was encouraged by religion (p value = 0.00). There was no significant difference between males and females as 617 (85.0%) of male agreed that religion encouraged blood donation compared to 326 (81.9%) females (p value = 0.1). In addition, there is also no significance between single-time donors and multiple-time donors regarding this factor (p value = 0.239).

Preferred site for donating

173 (15.4%) preferred donating at their workplace or residence. 379 (33.7%) of participants stated donating blood at a blood bank was suitable for them. 572 (50.9%) of participants stated no difference between donating at a blood bank or at their workplace or residence. 130 (17.9%) of males preferred to donate at their workplace or residence while 207 (28.5%) preferred to donate at a blood bank and the remaining 389 (53.6%) had no preference. For females, 172 (43.2%) preferred to donate at a blood bank while 43 (10.8%) preferred to donate at their workplace or residence and 183 (46%) had no preference. 73 (18.1%) donors preferred to donate at their workplace

or residence in comparison to 100 (13.9%) who preferred not to. 120 (29.8%) of donors preferred to donate at a blood bank in comparison to 259 (35.9%) of non-donors.

Overview of knowledge and myth among donors and non-donors

Knowledge of donors (6.6+-2.27), non-donors (6.04+-2.25) and those who were rejected (6.6+-2.03) showed that donors had better knowledge than non-donors ($p=0.000$) who though were rejected but still have good knowledge like donors ($p=0.994$). Knowledge of multiple-time donors (6.78+-2.15) was better than that of single-time donors (6.2+-2.5) ($p=0.031$). Donors were better than non-donors in having correct beliefs. Donors scored 2.8 out of 5 (SD 1) in correct beliefs while non-donor score 2.6 (SD 1.1) (p value = 0.011)

DISCUSSION

This current study showed that 35.9% of participants were donors, and almost more than half of males were donors (51%), while the percentage of female donors was 8.3%. This shows a significant difference among both genders, with males being more likely to donate. A similar finding was noted in many studies in the Kingdom (Al-Drees, 2008; Alfouzan, 2014) as well as in foreign countries (Salaudeen and Odeh, 2011; Safizadeh et al., 2009; Dubey et al., 2014). The average age of donors in this study was 31 ± 9.97 , while that of non-donors was 26.7 ± 9.03 , thus, people who were 33 years of age and older were more likely to donate. This finding was also observed in a Saudi study conducted at King Abdulaziz Medical City, where more than half (56.8%) of people who were in the age group 30-50 had a history of donation in comparison with those who were younger (Alfouzan, 2014). Similarly, another study in Greece demonstrated the same (Kalargirou et al., 2014). With regards to marital status, married couples were more likely to donate in comparison to single people. Very remarkably, this result corresponds to the same results found in a Saudi study, in which married couples had a higher rate of blood donation in comparison to single people (Alfouzan, 2014). We conclude that males, married couples, and people who were 33 years of age and above were more likely to be donors while females, single people, and people who were below 33 years of age were more likely to be non-donors.

In general, the number of blood donors was low, considering that more than the half of the participants did not donate their blood at all. One of the major goals in this study was to discover the reasons that might prevent people from donating blood. Majority of non-donors had no specific reasons preventing them from donating. This result was parallel to a study by Abdel Gader et al. (2011) where 38% of non-donors mentioned the same reason. In addition, shortage of time as a reason for not donating seemed to be similar to a study by Alfouzan (2014). Adjusting blood banks donating hours may permit more

donors to come at times that are appropriate for them. Other major reasons for not donating was that no one asked the participants to donate (Alam and El Din Masalmeh, 2004; Baig et al., 2013). To this end, using advertising and the media will keep the population aware about the continuous need for blood donation to save lives. The present study revealed that 22.5% of the participants did not donate because they deemed themselves unqualified, which seemed to be higher in comparison with other studies (Abdel Gader et al., 2011; Alam and El Din Masalmeh, 2004). Additionally, fear of needle was considered as one of the least reasons (7.9%) for not donating blood which agreed with studies by Alam and El Din Masalmeh (2004) and Dubey et al. (2014). An exception was noted in a Saudi study in which almost a third of the participants had fear of needles (Alfouzan, 2014).

In comparison between males and females, a North Indian study showed that both males and females shared the same reasons for not donating blood. The majority of both males (39.44%) and females (44.14%) mentioned that they never had an opportunity to donate and "donation is harmful" was mentioned by 14.87% males and 16.21% of females (Dubey et al., 2014).

The most reasons mentioned in this study for not donating by males were: no specific reasons (34.3%), no one asked them to donate (22.6%), shortage of time (19.2%), and they thought they were not qualified (18.2%). Regarding females, their most common reasons were no one asked them to donate (29.9%), followed by no specific reasons (29%), and that they thought they were not qualified (26.5%).

Regarding the question "what would make a person decide to give blood" an emergency was the most common answer (77.9%) considered by donors in a Greek study (Kalargirou et al., 2014). Our results agreed with this study's results. Blood banks should be ready for all cases that may need blood transfusion whether if they were emergent cases or not, therefore the population must be aware of the persistent need for blood donation in hospitals. In a study by Alfouzan (2014), individuals who donated blood before (95.6%) reported that they would donate again while 96.3% of them were pleased with the experience of blood donation.

Religion is an important factor that guides the behaviors of Saudis and may have positive or negative effects on the practice of blood donation. In our study, majority (83.9%) agreed that religion encouraged blood donation which donors believed in more than non-donors (Abdel Gader et al., 2011; Alfouzan, 2014; Abolfotouh et al., 2014). A Greek study reports that religious beliefs and ethics were not obstacles in the decision not to donate (Kalargirou et al., 2014). Religion could also have a negative effect on blood donation as shown in a Nigerian study where it was the most common reasons for both not donating blood and accepting the practice (Salaudeen and Odeh, 2011).

With respect to preference for site of donation, one study revealed that most respondents (67%) preferred donation at a blood bank while others preferred donating at their

workplace or residence (Kalargirou et al., 2014). In comparison with the present study, majority of the participants had no preference between donating at a blood bank or at their workplace or residence. Organizing regular blood donating campaigns throughout the year at different locations, either at a government department, or a private section might encourage people to donate and could solve the problem of transportation. According to a Spanish study, that most de-motivating factor for blood donation was the problem of access (Abdel Gader et al., 2011).

Conclusion

Keeping a continuously supplied blood bank is essential to meet the demand on blood for common hematological disorders and surgical needs. This can come through regular volunteer donors. Blood banks and responsible authority have got a great load to recruit people using different strategies. As blood donation is low especially among young people who constitute a large number of Saudi population and considered as potential good donors, we recommend to implant new effective strategies to attract them to donate blood and become regular donors. These strategies could include the following: increasing the contact between blood banks and the population through different ways (blood donation campaign, messages, changing the working time for blood banks to be suitable for donors, advertising through social media) and to encourage people to donate through religious events (Friday sermon). More effort to assess the efficacy of changing work time of blood bank is needed before taking this action.

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Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of the paper

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