

ORIGINAL ARTICLE

KNOWLEDGE, ATTITUDE, AWARENESS, AND MOTIVATION OF BLOOD DONATION AMONG ACADEMIC STAFF IN HEALTH COLLEGES IN THE SOUTHERN REGION OF SAUDI ARABIA

¹Hassan A. Hamali, BSc, MSc, PhD

Abstract

Objectives: The current study aimed to investigate and evaluate the knowledge, attitude, awareness, and motivation about blood donation among academic staff in health colleges in Southern region of Saudi Arabia. **Methods:** A cross-sectional descriptive study was conducted in two universities in the Southern region of Saudi Arabia. The participants were the academic staff in health colleges at King Khalid University, Abha, and Jazan University, Jazan, during 2016. A validated, well-structured questionnaire was used to collect data. Bivariate logistic regression analysis and odds ratio (OR) were used to assess the knowledge, attitude, awareness, and motivation about blood donation among the study participants.

Results: The results showed vast knowledge about blood groups among academic staff, which was significantly associated with their educational level (OR, 4.161; 95% confidence interval [CI], 2.313–7.484). Knowledge of the Rhesus blood group system is highly significantly associated with age and educational level of academic staff (OR, 0.018; 95% CI, 0.002–0.142 and OR, 0.311; 95% CI, 0.150–0.643). Awareness of the minimum requirements of blood donation is significantly associated with educational level and profession among academic staff (OR, 1.919; 95% CI, 1.482–2.485 and OR, 1.258; 95% CI, 1.059–1.494). **Conclusion:** This study provides a deep insight into the blood donation process among academic staff members in health colleges. The outcome of the study current reflects an extensive knowledge and positive attitude toward blood donation. The academic staff could play a key role in increasing the awareness about blood donation among their students, which could possibly reflect on the society.

Keywords: knowledge, attitude, awareness, motivation, blood donation, bivariate logistic regression, odds ratio

INTRODUCTION

Blood and its components are lifesaving and the core elements needed in all healthcare centers, i.e., hospitals, for transfusion during the management of

clinical conditions. To date, blood donation is the only source of blood and its components. Shortage of blood supply in healthcare centers represents a major concern for any society.¹

¹Department of Medical Laboratory Technology, College of Applied Medical Sciences, Jazan University, Gizan, Saudi Arabia

Correspondence should be addressed to:

Dr. Hassan A Hamali

P.O. Box 1906, Jazan, 45142, Saudi Arabia

Email: hhamali@jazanu.edu.sa

Phone: 0173223490

The demand for adequate and safe blood for transfusion is increasing worldwide, especially in developing countries,^{2,3} to meet medical needs and manage clinical conditions, mainly due to the increased rate of road traffic accidents and increased incidence of transfusion-dependent hematological disorders such as sickle cell anemia and thalassemia and the need for blood in routine surgical procedures.^{1,4,5} Blood donation is a voluntary, free of charge process in many parts of the world including Saudi Arabia. Saudi Arabia is no exception when it comes to the global demand for active blood donors. There are 10–19.9 donors for every 1,000 people in Saudi Arabia.⁶ However, 45% of them are replacement donors, not regular active donors.⁷ Although blood donation is a well-established and safe medical procedure, the attitude, knowledge, motivation, and beliefs of donors affect the process of donation and the number of active blood donors. This brings the need to plan, attract, and motivate people in the society to become active donors. Moreover, there is an urgent need to study and understand the motivational factors that contribute to recruit more blood donors. Some studies have reported the attitude and motivation of blood donors nationally^{4,5,8-10} and internationally,^{2,11} but this study is the first to evaluate the knowledge, attitude, awareness, and motivation about blood donation among academic staff in health colleges in Southern region of Saudi Arabia.

METHODS

Study design: A cross-sectional descriptive study was conducted in the Southern region of Saudi Arabia among the academic staff in health colleges in King Khalid University, Abha, and Jazan University, Jazan, during 2016. A well-structured questionnaire was designed and adopted from the literature of the previous studies.^{4,5,8,10-12} The study questionnaire was then pre-tested and validated by academic and consultant hematologists and experts in the transfusion sciences field. This validated, well-structured questionnaire was used to collect data from the study participants. The study included all academic staff of the health colleges in the two universities and excluded students and academic staff who were more than 60 years old.

Ethical consideration: The questionnaire was approved by the Ethical Committee of King Khalid University. The objective of the study was explained to all participants, and the participants signed the informed consent emphasizing the confidentiality of their information.

Data analysis: Collected data were entered in Microsoft Excel, and analysis was performed using the Statistical Package for the Social Sciences software version 21.0. Bivariate logistic regression analysis and odds ratio (OR) were used to measure the strength of association between the categorical variables, and P-value less than 0.05 was considered to be statistically significant.

RESULTS

Demographic characteristics of the study participants (Table 1)

A total of 176 academic staff participated in this study. They were from different nationalities, ethnicities, and educational levels. Of the 176 participants, only 157 responses were included, and 19 participants with incomplete responses were excluded from the study. The study participants comprised 37 females and 120 males, representing 23.57% and 76.43% gender distribution, respectively. The male to female ratio was 3:1, and the age of the participants ranged from 20 to 60 years, with the majority of participants in the range of 30–39 years, representing 52.22% of the participants (82 participants). Participants had varied ethnicities, educational levels, and professions as shown in Table 1.

Knowledge of blood group systems and transfusion services

The study participants showed a high level of knowledge as all the 157 participants knew their blood group type. Additionally, all of the participants reported that the most common blood group types were O+ (109 participants) and A+ (48 participants), and 104 out of the 157 participants knew about the Rhesus (Rh) blood group and were aware of the fact that the Rh system is represented as negative or positive in the blood group type (Table 2).

Table 1: Demographic characteristics of the study participants (n=157)

Variables	Responses	%
Gender		
Male	120	76.43
Female	37	23.57
Age (years)		
20-29	27	17.20
30-39	82	52.22
40-49	37	23.57
50-59	11	7.01
Ethnicity		
Arab	114	72.61
African	7	4.46
Indian	31	19.75
Asian	4	2.55
No response	1	0.64
Profession		
BMS	84	53.50
Radiology	21	13.38
Physiotherapy	21	13.38
Nutrition	8	5.10
Pharmacy	2	1.27
Physician	10	6.37
Nursing	4	2.55
Science	7	4.45
Level of Education		
PhD	49	31.21
Fellowship	2	1.27
MD	8	5.10
MSc	67	42.68
BSc	28	17.83
Diploma	3	1.91
Date of qualification		
1970-1979	1	0.64
1980-1989	8	5.10
1990-1999	15	9.55
2000-2009	49	31.21
2010-2017	76	48.41
No response	8	5.10

A total of 100 participants answered that the actual duration of blood donation process ranges from 20 to 60 minutes, 46 responded as 10 to 15 minutes, only 2 responded that it would be more than 60 minutes, and around 9 did not know the actual duration time of donation (data not shown).

On the other hand, around 49.68% (78 participants) of the participants thought that the time interval to wait

between blood donations for each person is 3 months, while 35.67% (56 responses) of the participants considered it to be 6 months, 11 answered 4 weeks, 4 assumed it as 12 months, and 1 replied to be 9 months, while the answer of the 10 participants was negative (they did not know). More than 100 participants selected that 450 ml is the volume to be collected from the donors in the current guidelines (data not shown). All of the participants answered that blood can save lives (data not shown).

Awareness

In general, 157 participants exhibited a high awareness among the participants who can donate blood. However, the design of the question allows the participants to select more than one option regarding the minimum requirement for blood donation (Table 2). All the 157 participants selected that a healthy man between 18 and 60 years old is the minimum requirement to donate blood, while 104 out of the 157 participants selected that a healthy woman between 18 and 60 years old is the minimum requirement to donate blood, representing 100% and 66.24%, respectively. On the other hand, most of the participants were aware of who cannot donate blood, which includes individuals with transfusion-transmitted infections and pregnant women (Table 2). All of the study participants answered that people with human immunodeficiency virus, hepatitis, and malaria infection cannot donate blood, as these diseases can be transmitted to the recipients through blood or its components by transfusion (data not shown).

Blood donation is a safe process

Around 99 participants thought that blood donation is a safe process with no risk, while 35 participants thought the process carries a medium risk. A total of 23 participants thought the risk is high. The majority of the participants (153 participants) answered that the blood from the donation undergoes extensive screening tests for infectious diseases (data not shown).

Table 2: Knowledge about blood donation among the study participants (n=157)

Knowledge	Particulars	Responses	Percentage
Select your blood group type?	O+	78	49.68
	A+	43	27.39
	B+	16	10.19
	AB+	12	7.64
	O-	2	1.27
	A-	2	1.27
	B-	2	1.27
	AB-	2	1.27
Do you know the most common blood groups?	O+	109	69.42
	A+	48	30.58
	Do not know	0	0
Do you know the Rh blood group system?	Yes	84	53.50
	No	73	46.50
Minimum requirements of blood donation	Healthy men (18-60 years)	157	100
	Healthy women (18-60 years)	104	66.24
	Young (<18 years)	11	7
	Pregnant women	0	0
	Women on menstrual cycle	2	1.27
	Women on oral contraceptive pills	4	2.55
	People with infectious diseases	0	0
	Vulnerable people	3	1.91
	People with unexplained weight loss	1	0.64
	Do not know	4	2.55

Attitude

Around 126 out of the 157 participants believed that blood should be donated on a regular basis (data not shown). 37 participants, out of the 126, had donated blood between 2 and 5 times, 32 participants had donated once, 21 participants had donated 5–10 times, 5 participants had donated 13 times, and 31 participants had never donated blood (data not shown). However, those 31 participants who had never donated blood stated that it is due to their religious belief and phobia of donation, the two main reasons for not donating blood (Figure 1). The opinion of the participants was variable regarding not donating blood at all. A summary of the reasons of not donating blood is given in Figure 1. A total of 63 out of the 126 participants who had donated blood before donated blood in the last 6 months, while 17 did so in the last year and 6 in the last 2 years, and 44 did not remember donating blood (data not shown). The motivations to

donate blood are shown in Table 3, with most of the participants willing to donate blood to help other people and also to motivate others to donate blood.

Sociodemographic factors associated with the level of knowledge of blood donation in bivariate analysis

Bivariate analysis showed that among sociodemographic variables, age, sex, educational level, profession, and ethnicity were included for measuring the strength of association with good knowledge about blood donation. According to the binary logistic regression analysis among the four variables, educational level is a highly significantly predicted variable regarding the knowledge about the blood group type, common blood group, and Rh blood system with the following values: 4.161 times (OR, 4.161; 95% confidence interval [CI], 2.313–7.484), 2.328 times (OR, 2.328; 95% CI, 1.760–3.079), and 0.311 times (OR, 0.311; 95% CI, 0.150–0.643),

respectively. Educational level and profession were highly significantly predicted variables regarding the knowledge about the minimum requirements of blood donation with the following values: 1.191 times (OR, 1.191; 95% CI, 1.482–2.485) and 1.258 times (OR, 1.258; 95% CI, 1.059–1.494), respectively, as shown in Table 4.

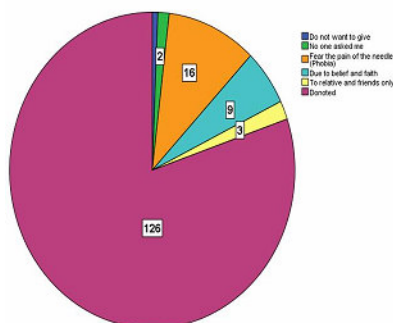


Figure 1: Reasons for not donating blood

Table 3: Motivation to donate blood (n=157)

Motivation	Responses	%
Factors that motivate you to donate blood		
To help other	102	64.97
Only to help my family	12	7.64
If someone asked	9	5.73
Paid donation	1	0.64
No answer	33	21.02
Are you willing to donate blood in the near future?		
Yes	132	53.50
No	25	46.50
Do you consider yourself a regular blood donor?		
Yes	25	15.92
No	124	78.98
Do not know	8	5.1
Are you willing to be a regular blood donor?		
Yes	115	73.25
No	42	26.74
Can you motivate others to donate blood?		
Yes	143	91.08
No	14	8.92

DISCUSSION

The process of blood donation is the only source for blood. Blood is vital for sustaining life and is a core part of any medical facility for medical intervention and management. A low number of safe and active blood donors subsequently lead to shortage in safe blood supply. It is a major health concern to any society. The increased demand of blood is globally recognized, especially in developing countries including Saudi Arabia. Hence, it is mandatory to assess the knowledge, attitude, motivation, and awareness blood donation in these societies to improve the behaviors and factors affecting the blood donors. The current study reported these factors about blood donation among academic staff in two public universities. The findings of the study contribute to the growing research field that knowledge, attitude, motivation, and awareness contribute in increasing the number of safe active donors.

The knowledge about blood donation and transfusion services serves as a window to access and motivate the public to become participants by donating blood and to become active donors. The major concern of the public is the fear of the process of blood donation and transmission of infection. The current study is, to some extent, in line with the other published studies.^{13,14} The attitude and knowledge toward blood donation play key roles in providing regular volunteer donors to the society. The current study shows that a strong positive attitude and in-depth knowledge about blood donation supports the results regarding voluntary blood donation in the literature.^{15,16} Many studies have shown that blood is donated to help others and the donors' relatives, which is consistent with the findings of this study, which states that the majority of its participants will donate blood to their relative.^{16,17} In contrast, other studies have shown that people are willing to donate blood only in cases of emergency¹⁸ or on a paid basis.¹⁹

Moreover, this study showed a high percentage of participants displaying the intention to be a regular blood donor and use their knowledge to influence others to donate blood. Knowledge of blood donation and educational level play key roles in encouraging a person and surrounding people to donate blood if such need arises.

Table 4: Factors associated with knowledge about blood donation(n=157)

Knowledge	Variable	Constant	Exp(B)	95% confidence interval	P-value
Know your blood group	Age	0.425	1.530	0.946-2.474	0.083
	Profession	0.84	1.087	0.932-1.269	0.287
	Ethnicity	0.132	1.141	0.808-1.610	0.455
	Education	1.426	4.161	2.313-7.484	0.000*
What is the common blood group	Age	0.133	1.142	0.717-1.817	0.576
	Profession	0.099	1.104	0.941-1.295	0.225
	Ethnicity	0.139	1.149	0.810-1.631	0.435
	Education	0.845	2.328	1.760-3.079	0.000*
Rh blood group system	Age	-4.042	0.018	0.002-0.142	0.000*
	Profession	-16.360	0.00	--	0.993
	Ethnicity	-16.224	0.000	--	0.996
	Education	-1.169	0.311	0.150-0.643	0.002*
Minimum requirement of blood donation	Age	0.002	1.002	0.631-1.590	0.994
	Profession	0.229	1.258	1.059-1.494	0.009*
	Ethnicity	0.286	1.331	0.934-1.897	0.114
	Education	0.652	1.919	1.482-2.485	0.000*

*Highly significant

Participants in this study clearly indicated that the role of professionals and health campaigns and social media are key motivators in recruiting volunteers for blood donation, which is in line with the findings of other studies.^{17,20}

The participants indicated that the fear of the pain caused by the needle is a reason of not donating blood, which is similar to the finding in a study conducted in Saudi Arabian¹⁷ and Jordanian populations.¹¹ However, the same participants thought that they can donate blood only to their relatives. It is always assumed that a more knowledgeable (educated) person with a positive attitude toward blood donation would practices it more. On the contrary, this phrase was not actually translated in the current study, as a 19.8% (31 participants) of participants did donate blood before due to belief/faith or phobia of blood donation. Participants in the current study have emphasized the importance of blood and the process of blood donation in saving the lives.

Conclusion

This study demonstrates a high knowledge of the blood donation process among academic staff in health

colleges. Although the study participants are not active blood donors, they consider to be active donors in the future and can motivate others to be active blood donors. The current outcome reflects an extensive knowledge and positive attitude toward blood donation. The academic staff could play a key role in increasing the awareness about blood donation among their students, which could possibly reflect on the society.

It is highly recommended to use blood donation campaigns and media to recruit and call for voluntary blood donors using the university's staff, as they have a great influence on their audience, i.e., their students. Furthermore, the use of these measures should be implemented as a strategic method in spreading awareness about blood donation and generating motivation for others. This study provides a deep insight into the blood donation process among academic staff members in health colleges. The study participants have ability to influence and motivate others to be active blood donors and emphasis the importance of donating blood to save lives.

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