



Knowledge, Attitudes and Practices towards Blood Donation and Associated Factors among Najran University's Students, KSA

Abdullah Aedh*

Department of Internal Medicine, College of Medicine, Najran University, Saudi Arabia

*Corresponding e-mail: nahid1768@hotmail.com

ABSTRACT

Background: Donating blood can help in saving the lives of many individuals around the globe. Evidence indicates that there is a shortage of blood and blood products in many countries. This study aimed at assessing knowledge, attitudes, and practices towards blood donation and its associated factors. **Methodology:** A community-based and cross-sectional study was conducted at Najran University from November 2020 to June 2021. A convenient sampling technique was adopted for recruiting 445 participants. A structured electronic questionnaire was utilized for collecting data. Chi-square and logistic regressions were carried out. Associations were considered significant when p -value < 0.05 . **Results:** In this study, 310 (62%) were males. 205 (46.1%) are currently studying in health colleges. 272 (61.1%) were found to be knowledgeable, while 265 (59.6%) were having favorable attitudes towards blood donation respectively. Only 98 (22%) of the participants reported having an experience of blood donation. Health colleges' participants were significantly having good knowledge regarding blood donation. Studying field, gender, and previous experience of blood donation were found to be independent predictors of attitude. **Conclusion:** The level of knowledge regarding blood donation was found to be reasonable. The findings of the current study also justified any possible and regularly scheduled campaigns for raising awareness regarding voluntary donation.

Keywords: Blood donation, Knowledge, Attitude, Practices

INTRODUCTION

Blood transfusion is one of the lifesaving interventions that is crucial for any nation's health care systems [1]. Donating blood doesn't only benefit recipients, but also has many benefits for donors too. On top of these benefits that come from helping people [2]. The demand and need for blood and blood products are rising internationally [3,4]. Evidence showed that around quarter million maternal deaths globally and around 15% of child mortality were attributed to obstetric bleeding and anemia, respectively [5].

Internationally, around 92 million units of blood donation are collected annually from all types (groups) of blood. The lowest levels of blood availability are found in low and middle-income countries [6].

In Saudi Arabia, the main provider of health services is the Ministry of Health (MOH) among others, such as universities, military hospitals, the private sector, and others. Therefore, the blood transfusion service is predominantly a hospital-based blood banking system that allows each hospital to have its blood bank to cover its demand for blood. That may result in variation in blood supply from one area to another.

Additionally, the Saudi Society of Transfusion Medicine (SSTM) vision and goals for 2020-2030 are to support the increase in quality, quantity, and safety of blood products through encouraging volunteer blood donation among younger people [7]. Therefore, raising the level of awareness and hastening the development of a positive attitude towards blood donation in the community should be a major goal in designing an efficient strategy for sustaining an adequate blood supply throughout the year. The first step to meet this goal can be by performing a comprehensive assessment of knowledge and attitude towards blood donation.

METHODOLOGY

It was a descriptive, community based and cross-sectional study that was conducted to assess the knowledge, attitude, and practice towards blood donation and its associated factors among students at Najran University, Saudi Arabia from December 2020 to June 2021.

Sampling Technique

A convenient sampling technique was adopted to recruit a total of 445 who voluntarily participated in the current survey.

Data Collection Process

Data were obtained *via* an electronic questionnaire linked through social media. The quality of data was assured by proper designing and pre-testing of the questionnaire for its validity and reliability. The average Cronbach's alpha value was 0.71 which is appropriate.

The questionnaire had four sections. Section one is about socio-demographic factors (age, sex, marital status, educational specialty whether medical or non-medical field). Section two is about knowledge questions. While section three for attitude questions, and finally the practice questions in section four which regarding the experience of blood donation.

Operational Definitions

Six questions were utilized for assessing the level of knowledge. The total scoring of knowledge ranged from 0-5 (i.e. One score was given for each correct answer and zero scores for incorrect one). The participants whose total scores were 50% or above were considered to have adequate knowledge [8].

Regarding attitude towards blood donation was assessed by agree and disagree questions. In which, one score was given for each agreed answer, while zero scores were given to each disagree one. Respondents with a total score of 50% or more were considered to have a positive attitude, and those were having less than 50% were labeled as having a negative attitude towards blood donation.

Practices were assessed based on previous experience of blood donation as zero, once, twice, or more.

Data Processing and Analysis

Statistical Package for Social Sciences (SPSS) version 22.0 (IBM Company, Chicago, USA) was utilized for analysis. Data were tabulated. Frequencies, proportions, and measures of central tendency and variations were used for descriptive analysis. Binary logistic regression analysis was used to identify variables that are independently associated with knowledge, attitude, and practice towards blood donation. p -value <0.05 was considered as significant.

Ethical Consideration

The current study was reviewed and approved by an ethical board. All subjects were adequately pre-informed about the aim and implication of the study and were told about their full right to refuse or withdraw their verbal consent at any stage of the process. Additionally, confidentiality was assured to all participants.

RESULTS

Socio-Demographic Characteristics

A total of 445 respondents were voluntary participated in the current survey. As shown in Table 1, 234 (52.6%) of the participants were males. The subjects' mean age was 19.5 ± 2.53 (mean \pm SD). The majority of the 315 (70.8%) were between ages between 18-21 years old.

Regarding their marital status, only 95 (21.3%) were married. The results revealed that 205 (46.1%) of them are currently studying medical sciences, while the rest 240 (53.9%) are currently enrolling in non-medical fields respectively. Among the total subjects, only 98 (22%) were experienced blood donation.

Table 1 Demographic characteristics of the participants (n=445)

Characteristics	Frequency	(%)
Gender		
Male	234	52.6%
Female	211	47.4%
Age in Years		
18-21	315	70.8%
22-25	112	25.2%
≥ 26	18	4%
Marital Status		
Married	95	21.3%
Single	308	69.2%
Divorced	39	8.8%
Widowed	3	0.7%
Studying Field		
Medical field	205	46.1%
Non-medical field	240	53.9%
Previous Donation		
Yes	98	22%
No	347	78%

Knowledge about Blood Donation and its Associated Factors

It was reported all participants (100%) were heard and know what blood donations were. The majority of the 289 (64.9%) heard from social media, followed by 92 (11.9%) those heard from television, and the rest 64 (14.4%) heard from other sources which include families, friends, and health professionals.

Considering six knowledge questions, 272 (61.1%) of the participants scored above 50% which indicates adequate knowledge regarding blood donation. The study revealed that males were more knowledgeable than females significantly (CI: 0.12-0.31; p-value=0.04). Being at medical colleges along with the previous donation were significantly (CI: 1.39-4.17; p-value=0.01), (CI: 1.55-3.72; p-value=0.03) associated with knowledge about blood donation compared with those who are at non-medical colleges respectively.

On the other hand, age and marital status were not significantly associated with knowledge (p-value>0.05) (Table 2).

Table 2 Factors associated with knowledge about blood donation among students in a multivariable logistic regression analysis (n=445)

Variables	Knowledge score		CI
	Coeff	p-value	
Gender			
Male	Ref	0.04*	0.12-0.31
Female	0.16		
Age in Years			
18-21	Ref	0.21	0.11-0.06
22-25	0.04		
≥ 26	0.03		
Marital Status			

Married	Ref		
Single	0.01	0.19	0.06-0.71
Divorced	0.22		2.09-1.11
Widowed	0.13		1.18-0.91
Studying Field			
Medical field	Ref	0.01*	
Non-medical field	0.21		1.39-4.17
Previous Donation			
Yes	Ref	0.03*	
No	0.09		1.55-3.72
*Significant at p<0.05. CI=Confidence Interval			

As shown in Table 3, the majority of medical colleges' students 171 (83.4%) have adequate knowledge, while on the other hand only 25 (13.9%) of non-medical colleges' students showed adequate knowledge. Generally, a significant difference in levels of knowledge was noticed between the two groups respectively (Table 3).

Table 3 Knowledge about blood donation among Najran University students (n=445)

Variable	Medical sciences' students (n=205)		Non-medical sciences' students (n=240)		χ^2	p-value
	n	%	n	%		
Knowledge score						
Adequate	171	83.4%	109	45.4%	161.089	0.011*
Inadequate	34	16.6%	131	54.6%		
*Significant at p<0.05						

Attitude towards Blood Donation and its Associated Factor

Regarding composite measure of attitude, 265 (59.6%) of the respondents had a favourable attitude towards blood donation with a mean score of 4.64 ± 1.76 . The likelihood of favourable attitude was observed to be higher among medical colleges' students (90.7%) compared with non-medical students who reported 70.4% with a significant difference between the two groups respectively (p-value<0.05).

Generally, most of the subjects (67.2%) believed that blood donation is a good moral habit and they were willing to donate if there is an emergency or a need for blood. Additionally, gender and previous experience of donation were observed to be significantly associated with a favourable attitude. In contrast, marital status and age were not significantly associated with favourable attitudes respectively (Table 4 and Table 5).

Table 4 Factors associated with knowledge about blood donation among subjects in a multivariable logistic regression analysis (n=445)

Variable	Total (n=445) No. (%)		Participants' attitude towards blood donation				p-value
			Health colleges' students (n=205)		Non-health colleges' students (n=240)		
	Favorable (+ve)	Unfavorable (-ve)	Favorable (+ve)	Unfavorable (-ve)	Favorable (+ve)	Unfavorable (-ve)	
Gender							
Male	153 (65.4%)	81 (34.6%)	94 (45.9%)	15 (7.3%)	59 (24.6%)	66 (27.5%)	0.04*
Female	112 (53.1%)	99 (46.9%)	60 (29.3%)	36 (17.6%)	52 (21.7%)	63 (26.3%)	

Age in Years							0.07
18-21	174 (39.1%)	141 (31.6%)	112 (54.6%)	39 (19%)	62 (25.8%)	102 (42.5%)	
22-25	40 (9%)	72 (16.2%)	31 (15.1%)	14 (6.8%)	9 (3.8%)	58 (24.2%)	
≥ 26	10 (2.2%)	8 (1.8%)	8 (3.9%)	1 (0.5%)	2 (0.8%)	7 (2.9%)	
Marital Status							0.12
Married	61 (13.7%)	34 (7.6%)	44 (21.5%)	9 (4.4%)	17 (7.1%)	25 (10.4%)	
Single	151 (33.9%)	157 (35.3%)	84 (41%)	47 (22.9%)	67 (27.9%)	110 (45.8%)	
Divorced	23 (5.2%)	16 (3.6%)	14 (6.8%)	7 (3.4%)	9 (3.8%)	9 (3.8%)	
Widowed	1 (0.2%)	2 (0.4%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	2 (0.8%)	
Previous Donation							0.001*
Yes	98 (22%)	0 (0.0%)	64 (31.2%)	0 (0.0%)	34 (14.2%)	0 (0.0%)	
No	203 (45.6%)	144 (32.4%)	112 (54.6%)	29 (14.1%)	91 (37.9%)	115 (47.9%)	

Table 5 Attitude towards blood donation among students (n=445)

Variable	Medical sciences' students (n=205)		Non-medical sciences' students (n=240)		χ^2	p-value
	n	%	n	%		
Level of Attitude						
Favorable	186	90.7%	169	70.4%	51.101	0.046*
Non-favorable	19	9.3%	71	29.6%		
*Significant at p< 0.05						

The practice of Blood Donation and its Associated Factors

Regarding blood donation experience, 98 (22%) only of the studied participants have a previous history of donation (Table 1). Among blood donors, 43 (9.7%), 36 (8.1%), and 19 (4.3%) of them were donated once, twice and more than twice respectively (Figure 1). However, only 8 (1.8%) of them were regular donors.

It was reported that the majority 65 (57.1) of the donors were donated to friends or relatives, while the rest were voluntarily donated to blood banks in hospitals.

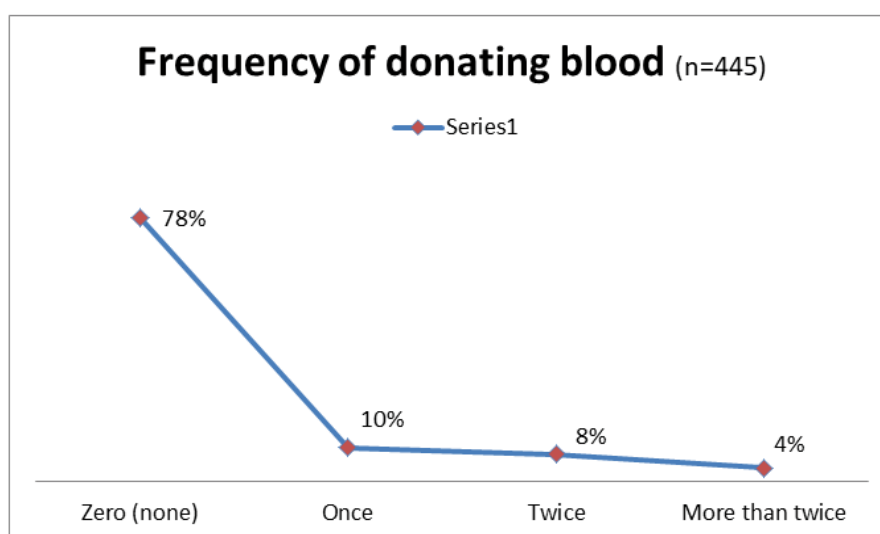


Figure 1 Blood donation experience among subjects (n=445)

Several reasons have been stated behind not donating blood such as the existence of some health problems, fear of pain or other complications, not enough time to go for donation, and others. On top of these reasons was the fear of pain or other complications 107 (30.8%), followed by complaining of existing health disorders 82 (23.6%).

Surprisingly, 43 (12.4%) of the subjects mentioned lack of information (when, where, and how to donate) as one of the reasons behind not donating blood previously. Although, there was no significant difference in causes of non-donation between the students of the two educational fields (p -value>0.05), the likelihood of blood donation was higher among health colleges' students compared to non-medical ones respectively (Table 6 and Table 7).

Table 6 Reasons behind not donating blood among sample (n=445)

Reasons for not-donation	Total (n=347)	Students at health colleges (n=110)	Students at non-health colleges (n=237)	χ^2 ; p-value
	No. (%)	No. (%)	No. (%)	
Lack of information (when, where and how to donate)	43 (12.4%)	17 (15.5%)	26 (11%)	$\chi^2=12.572$; p=0.301
They didn't think about it	46 (13.3%)	21 (19.1%)	25 (10.5%)	
Their own health problems	82 (23.6%)	40 (36.4%)	42 (17.7%)	
No one asked them to donate	54 (15.6%)	12 (10.9%)	42 (17.7%)	
Lack of time	58 (16.7%)	31 (28.2%)	27 (11.4%)	
Fear of blood extraction, pain or other complications	107 (30.8%)	6 (5.5%)	101 (42.6%)	

Table 7 Blood donation practices among participants (n=445)

Variable	Medical sciences' students (n=205)		Non-medical sciences' students (n=240)		χ^2	p-value
	n	%	n	%		
Blood donation practice						
Yes	64	31.2%	34	14.2%	67.556	0.051
No	141	68.8%	206	85.8%		
*Significant at $p < 0.05$						

DISCUSSION

The overall level of knowledge about blood donation among the participated subjects in this survey was found to be 61.1% which is consistent with what had been reported in Jeddah-Saudi Arabia (60.2%), Iraq (66.7%) [8,9]. In contrast, this concluded result was lower than reported in Thailand (80%), Nigeria (72%), Addis Ababa-Ethiopia (83%), and Pakistan (90%) [10-12].

However, it is higher than what was reported in some similar studies conducted among Jazan university students (51.6%), King Abdul-Aziz University in Rabigh (19%), Central Saudi Arabia (58.07%), Gondar-Northwest Ethiopia (48.2%), and Mangalore-India (48.09%) [12-16].

Regarding attitude, was measured based on the mean score which indicates that 59.6% of the respondents had favorable attitudes towards blood donation. This is better compared to some studies conducted in Pakistan (42%), Ambo University in Ethiopia (47.4%), and the USA reported to be 56% respectively [12,17,18].

Nevertheless, it is lower than what was reported in India (87.3%), Ethiopia (79.2%), Iraq (68.7%), King Saud University (99%), and among university students in Tanzania (93%) [9,15,19-21].

The current study revealed that educational field, gender, and previous donation were significantly associated with favourable attitudes towards blood donation.

When coming to blood donation practices among subjects, 22% only of them had a previous history of blood donation, which is higher than what Baig, et al concluded among King Abdul-Aziz university students in Jeddah (19.02%), Mustafa et al at Majmaah university in Saudi Arabia (14.1%), Iraq (13%) and in Iran (9.74%) [9,22-24]. However, on the other hand, it is lower than what had been reported in Jazan (29%), Saudi Arabia universities (30.1%), India (47.2%) [2,8,13,14].

In terms of reasons behind not donating blood, there was a significant association of many factors such as fear of pain and blood extraction, no one asked them to donate, the existence of some health problems, lack of information about when and how to donate besides there was no enough time to donate.

CONCLUSION

Significant differences regarding level of knowledge and attitude were observed between the health and non-health colleges' students at Najran University (Saudi Arabia). Moreover, gender, studying the field, and donation experience were found to be significant predictors of the levels of knowledge and attitude among the students. Health colleges' students showed a better level of knowledge and practices than those at non-health colleges respectively.

Furthermore, despite the positive attitudes towards donation among participants, only 22% of them reported a history of blood donation. Therefore, the findings of the current study justified any possible regular scheduled intervention programs and blood donation campaigns to motivate and increase awareness among students as well as at the community level towards regular voluntary donation rather than donating blood when needed.

DECLARATIONS

Conflicts of Interest

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

REFERENCES

- [1] Misganaw, Chalachew, et al. "The level and associated factors of knowledge, attitude and practice of blood donation among health science students of Addis Ababa University." *International Journal of Medical and Health Sciences Research*, Vol. 1, No. 10, 2014, pp. 105-18.
- [2] Sabu, K. M., et al. "Knowledge, attitude and practice on blood donation among health science students in a university campus, South India." *Online Journal of Health and Allied Sciences*, Vol. 10, No. 2, 2011.
- [3] Das, Karobi, et al. "Knowledge, attitude and practices of blood donors toward blood donation." *Journal of Postgraduate Medicine, Education and Research*, Vol. 48, No. 3, 2014, pp. 123-27.
- [4] Devi, H. Sanayaima, Shantibala K. Jalina, and Laishram Vijaya Elangbam. "Knowledge, Attitude and Practice (KAP) of blood safety and donation." 2012.
- [5] Bailey, Patricia E., et al. "Institutional maternal and perinatal deaths: A review of 40 low and middle income countries." *BMC Pregnancy and Childbirth*, Vol. 17, No. 1, 2017, pp. 1-14.
- [6] World Health Organization. "Blood Safety: Key global fact and figures in 2011." 2011. https://www.who.int/worldblooddonorday/media/who_blood_safety_factsheet_2011.pdf
- [7] Hindawi, Salwa. "Evolution of blood transfusion medicine in Saudi Arabia." *Transfusion*, Vol. 60, No. 1, 2020, pp. S2-S3.
- [8] Alsalmi, Mohammed A., et al. "Knowledge, attitude and practice of blood donation among health professions students in Saudi Arabia; A cross-sectional study." *Journal of Family Medicine and Primary Care*, Vol. 8, No. 7, 2019, pp. 2322-27.
- [9] Al-Asadi, Jasim N., and Asaad Q. Al-Yassen. "Knowledge, attitude and practice of blood donation among university students in Basrah, Iraq: A comparison between medical and non-medical students." *Asian Journal of Medical Sciences*, Vol. 9, No. 6, 2018, pp. 62-67.
- [10] Wiwanitkit, V. "Knowledge about blood donation among a sample of Thai university students." *Vox Sanguinis*, Vol. 83, No. 2, 2002, pp. 97-99.

-
- [11] Ugwu, N. I., et al. "Voluntary non-remunerated blood donation: Awareness, perception, and attitude among potential blood donors in Abakaliki, Nigeria." *Nigerian Journal of Clinical Practice*, Vol. 22, No. 11, 2019, pp. 1509-15.
- [12] Ahmed, Zeeshan, et al. "Knowledge, attitude and practices about blood donation among undergraduate medical students in Karachi." *Journal of Infectious Diseases and Therapy*, Vol. 2, No. 2, 2014.
- [13] Mahfouz, Mohamed Salih, et al. "Blood donation among university students: Practices, motivations, and barriers in Saudi Arabia." *Avicenna Journal of Medicine*, Vol. 11, No. 2, 2021, pp. 70-76.
- [14] Abolfotouh, Mostafa A., et al. "Public awareness of blood donation in Central Saudi Arabia." *International Journal of General Medicine*, Vol. 7, 2014, pp. 401-10.
- [15] Enawgaw, Bamlaku, Aregawi Yalew, and Elias Shiferaw. "Blood donors' knowledge and attitude towards blood donation at North Gondar district blood bank, Northwest Ethiopia: A cross-sectional study." *BMC Research Notes*, Vol. 12, No. 1, 2019, pp. 1-6.
- [16] Siddhanth, Suresh, and Cryslle Saldanha. "A study of knowledge, attitude and practice towards voluntary blood donation among medical students." *MedPulse International Journal of Pathology*, Vol. 11, No. 3, 2019, pp. 134-36.
- [17] Nigatu, A., and D. B. Demissie. "Knowledge, attitude and practice on voluntary blood donation and associated factors among Ambo University Regular Students, Ambo Town, Ethiopia." *Journal of Community Medicine & Health Education*, Vol. 4, No. 5, 2014, pp. 1-6.
- [18] Allerson, Jeffrey T. "Assessment of selected university students' knowledge of blood donation and the relationship with intent to donate blood." *Minnesota State University, Mankato*, 2012.
- [19] Uma, S., R. Arun, and P. Arumugam. "The knowledge, attitude and practice towards blood donation among voluntary blood donors in Chennai, India." *Journal of Clinical and Diagnostic Research: JCDR*, Vol. 7, No. 6, 2013, pp. 1043-46.
- [20] Gader, Abdel Galil M. Abdel, et al. "Attitude to blood donation in Saudi Arabia." *Asian Journal of Transfusion Science*, Vol. 5, No. 2, 2011, pp. 121-26.
- [21] Elias, Elionora, et al. "Knowledge, attitudes, practices, and factors associated with voluntary blood donation among university students in Kilimanjaro, Tanzania." *Journal of Blood Transfusion*, Vol. 2016, 2016.
- [22] Baig, Mukhtiar, et al. "Knowledge, misconceptions and motivations towards blood donation among university students in KSA." *Pakistan Journal of Medical Sciences*, Vol. 29, No. 6, 2013, pp. 1295-99.
- [23] Mustafa, Mustafa Mohammed, Eyad Naji Abdelfattah, and M. O. Al Rukban. "Attitude towards blood donation among university students." *International Journal of Sciences: Basic and Applied Research*, Vol. 19, 2015, pp. 82-91.
- [24] Majdabadi, Hesamedin Askari, et al. "Awareness of and attitude towards blood donation in students at the Semnan University of Medical Sciences." *Electronic Physician*, Vol. 10, No. 5, 2018, pp. 6821-28.