

Knowledge, Inhibition and Incentives Towards Voluntary Blood Donation: A Comparative Study among Medical and Non-medical Students

LEKHA BHARADWAJ¹, ARCHANA SHETTY², VIJAYA CHOWDAPPA³

ABSTRACT

Introduction: The factors impacting blood donation decision are directly related to the knowledge and awareness regarding the same. One of the potential sources for safe blood donation is the young and physically fit students across the country.

Aim: To compare the knowledge, inhibitions and choice of incentives for voluntary blood donation among medical and non-medical (engineering) students.

Materials and Methods: This cross-sectional study was done between 250 students from the second year of both medical (MBBS) and non-medical (Engineering) courses in the vicinity of our Institute. Data was collected using pre tested closed questionnaire. Simple Chi-square tests were applied to calculate association between different variables with p-value

set as significant at <0.05.

Results: According to the results of the study there was significant difference in the p-value in knowledge and also some misconceptions that inhibit to donate blood, particularly in the non-medical group. No significant difference was seen towards incentives, while the type of incentive preference differed.

Conclusion: A considerable percentage of non-medical students had low awareness about blood donation. The negative attitude towards blood donation is an important factor contributing to the lack of interest and decreased participation in blood donation among the student. Therefore, there is a critical need for programmes creating awareness and activities encouraging blood donation in the young student population.

Keywords: Awareness, Donors, Engineering, Negative attitude

INTRODUCTION

Blood is a valuable, life-sustaining fluid [1]. It is a natural human product that cannot be manufactured and has no other substitutes other than blood donation. It is fundamental for the hospital industry to prioritize the importance of providing satisfactory blood and blood products for their patients [2]. The demand for blood and blood products in most countries continues to increase not only because of rise in human life expectancy and also implementation of new aggressive surgical and therapeutic methods requiring considerable quantities of blood and blood products [3]. Students comprise a huge and healthy proportion of eligible blood donors in any country to meet the blood requirements [3]. Though constant effort is made to enhance voluntary blood donation in young generation, on an average only 60% of them have adequate knowledge on blood donation [4]. WHO recommends countries to focus on young people to achieve 100% non-remunerated voluntary blood donation by 2020 [1].

Being in the medical field of health care and clinical practice, medical students have definite and prominent role in blood donation. Many studies have said that a lower donation rate among medical students is seen than in the non-medical students [5-9]. Comparative studies among medical and non-medical students although done in the past, studies from our region are sparse. It would also be interesting to study the attitude of two different academic specialities of students of the same age and geographic area, aiding in customising the ways to promote blood donation among them according to the existing attitude and knowledge, hence the need for this study.

MATERIALS AND METHODS

This cross-sectional study was conducted in our medical college and in the engineering college located in the immediate vicinity of our hospital from August 2018 to October 2018. Students from the

second year of both non-medical-engineering (computer science) and medical (MBBS) courses were selected for the study. The average age of the students ranged about 19-21 years. Sample size was calculated using the formula: $n = 4pq \div d^2$ where 'p' was the prevalence as given in previous similar studies. 'd' was the allowable error. Considering 10% of non-responders, the sample size consisted of 125 medical and 125 non-medical students.

Data Collection

A structured questionnaire was formatted after a review of recent literature on similar studies. The questionnaire, formatted was in Standard English and had three parts with closed ended questions each on various aspects of blood donation. The first part on knowledge had 12 close ended questions, the second on inhibitions (factors that prevented them for donating blood) had seven close ended questions and the third on preferred incentives towards blood donation had five questions.

The questionnaire was distributed to be filled by the students over duration of 15 minutes to both the medical and non-medical (engineering students on the same day). The questions were simple and within the limits of understanding of the study group of students. The questionnaires were collected personally from all the students for data interpretation.

STATISTICAL ANALYSIS

The Statistical Package for Social Sciences (SPSS version 20) was used for data entry and qualitative and quantitative statistical analysis. The descriptive statistics (frequency and percentage for categorical data) were computed. Chi-square was used to test for the difference between the two categorical variables. Statistically significant differences were considered at $p < 0.05$.

RESULTS

A total of 250 college students from MBBS (medical) and Engineering (non-medical) participated in the study. Mean age of the study population was 20 years, with the ages ranging from 19-21 years. The answers for the questionnaires were compared among the two groups as follows [Table/Fig-1-3].

Question	Medical=125		Non-medical=125		p-value
	Yes	No	Yes	No	
1. Do you know your blood group?	125 (100%)	0 (0%)	96 (76.8%)	29 (2.2%)	0.003
2. The minimum age to donate blood is 18 years?	82 (65.6%)	43 (34.4%)	35 (28%)	90 (72%)	<0.001*
3. Does blood donation causes anaemia?	0 (0%)	125 (100%)	32 (25.6%)	93 (74.4%)	<0.001*
4. Must the donor be fasting before blood donation?	0 (0%)	125 (100%)	88 (70.4%)	37 (29.6%)	<0.001*
5. Is every blood sample donated gets tested for HIV, HBs Ag and syphilis	104 (83.2%)	21 (16.8%)	111 (88.8%)	14 (11.2%)	0.274
6. Can donated blood be stored for later use	125 (100%)	0 (0%)	103 (82.4)	22 (17.6%)	<0.001*
7. Around 350 ml of blood is taken from each donor	89 (71.2%)	36 (28.8%)	30 (24%)	95 (76%)	<0.001*
8. Sixty is the maximum age for blood donation?	91 (72.8%)	34 (27.2%)	91 (72.8%)	34 (27.2%)	1.000
9. A diabetic patient can donate blood?	35 (28%)	90 (72%)	45 (36%)	80 (64%)	0.222
10. An average blood donation process lasts for around? 20 minutes	49 (39.2%)	76 (60.8)	90 (72%)	35 (28%)	<0.001*
11. if the donor has fever on the day of blood donation can he/she donate blood ?	0 (0%)	125 (100%)	80 (64%)	45 (36%)	<0.001*
12. Can a hypertension patient donate blood?	27 (21.6%)	98 (78.4%)	19 (15.2%)	106 (84.4%)	0.253

[Table/Fig-1]: Comparison of knowledge about blood donation among medical and non-medical students.

*Significant p-value

Question	Medical=125		Non-medical =125		p-value
	Yes	No	Yes	No	
1. I think I am medically unfit to donate blood	0 (0%)	125 (100%)	103 (82.4%)	22 (17.6%)	<0.001*
2. Fear related to venepuncture	42 (33.6%)	83 (66.4)	63 (50.4%)	62 (49.6%)	0.010*
3. Fear of contracting diseases	27 (21.6%)	98 (78.4%)	93 (74.4%)	32 (25.6%)	<0.001*
4. Parents do not allow	0 (0%)	125 (100%)	95 (76%)	30 (24%)	<0.001*
5. No information about where, when how to donate blood	0 (0%)	125 (100%)	92 (73.2%)	33 (26.4%)	<0.001*
6. Fear of weakness after blood donation	30 (24%)	95 (76%)	80 (64%)	45 (36%)	<0.001*
7. Do you think having tattoo is barrier for blood donation	98 (78.4%)	27 (21.6%)	80 (64%)	45 (36%)	0.192

[Table/Fig-2]: Comparison on inhibition on blood donation among medical and non-medical students.

Question	Medical=125		Non-medical=125		p-value
	Yes	No	Yes	No	
1. Free screening test for knowing blood group	125 (100%)	0 (0%)	106 (84.8%)	19 (15.2%)	<0.001*
2. Tokens of appreciation in the form of a trophy	114 (91.2%)	11 (8.8%)	89 (71.2%)	36 (28.8%)	<0.001*
3. Certificate of appreciation	125 (100%)	0 (0%)	103 (82.4%)	22 (17.6%)	<0.001*
4. Gifts such as t-shirts or other small items bearing the blood donation emblem	19 (15.2%)	106 (84.8)	99 (79.2%)	26 (20.8%)	<0.001*
5. Coupon for free item on the day of blood donation in college cafeteria	0 (0%)	125 (100%)	100 (80%)	25 (20%)	<0.001*

[Table/Fig-3]: Comparison on incentives on blood donation among medical and non-medical students.

The p-value was significant for a majority of the questions asked pertaining to knowledge among the two groups of students.

The inhibitions asked were seen mainly in non-medical students as compared to medical students, who felt that the restrictions and limitations to donate blood were much less.

DISCUSSION

The purpose of the study was to explore knowledge, inhibition and incentives for blood donation among medical and non-medical students. The perceptions towards voluntary blood donation are influenced by variables of knowledge of the students. As per WHO 38% of reported voluntary blood donors are under the age of 25, hence insists countries to focus on this age group enumerated blood donation [10].

Our study agrees with the other previous studies about the positive attitude on knowledge of blood donation among medical students [5-8]. There is no significant ($p>0.005$) difference in knowledge regarding age of blood donation and donating blood by hypertensive patients among medical and non-medical students which shows that some awareness exists among non-medical students regarding the same. Our study results showed that more than 50% of non-medical students also have good and adequate knowledge about blood donation, similar to a study done by Hossain Parash MT et al., [11]. Lack of knowledge is mainly seen in how much blood is taken during the blood donation among non-medical students.

Medical students as a part of their MBBS curriculum have to compulsorily test their blood for blood groups, during the initial years of the course. This may be the reason why all medical students unlike engineering students were aware of their blood group. Knowledge plays a key role in the blood donation as half knowledge or misconceptions on blood donation among the non-medical students can defer them from donating blood. The general opinion of the blood donors will create an opportunity for blood donation which plays an important role in motivating them to donate blood.

Compared to previous studies in which there was a high level of negative attitude towards the inhibition of blood donation among both medical and non-medical students, in our study we found that there is decrease in the negative attitude in the inhibition about the blood donation [8,9]. Mainly fear towards venepuncture among the medical students is about 33.6% and among non-medical students is 50.4%. A few studies have shown that non-medical students are donating blood more often than medical students because medical students are more aware of the complications [12]. In the present study there is a gradual increase in the donation of the blood among medical students as our study reports more fear of weakness after donation of blood among non-medical students (64%) compared to the medical students (24%). Overall medical students and non-medical students are showing positive attitude towards the inhibition

on blood donation. The fact that a high percentage of non-medical students did not donate (73.2%) because of the lack of information on the same, similar to study by Bharatwaj RS et al., indicates that more awareness needs to be created specifically targeting these students [8].

Incentives are small tokens of appreciation give to donors as a documentation and mark of gratitude for voluntarily donating blood. This motivates the young crowd to come forward for blood donation when opportunity arises. Incentives among medical students and non-medical students are different according to their preferences. Wanting to get their blood group tested was the most favoured incentive among non-medical students unlike medical students, in accordance with the study done by Alanazi MT et al., [13]. Hundred percent medical students were interested in taking certificate of appreciation and 84.8% medical students were interested in trophy as appreciation. Gift items were more preferred by non-medical students. The incentives to promote voluntary donation should incorporate blood donation motivated by altruism whereby individuals donate to benefit others and also to gain emotional satisfaction and the blood donor is driven by a desire to contribute to society, along with a sense of personal satisfaction from donating [14,15].

It is reported that there are still many misguided attitudes and knowledge towards the blood donation among students and general public especially in rural areas [16-18] A study by Sadler A et al., has documented that appropriately utilized incentives might also help overcome fear and laziness as most commonly reported obstacles to donating blood [19]. Judicious use of incentives can be done to enhance blood donation among student groups.

Our regional blood transfusion council report states that several blood banks in the state have shortage of blood. When supreme court ordered banning of the paid donors, there was slow gradual decrease in the blood donation [2,14]. Our state suffers from 50% shortage of daily requirement of blood. Voluntary blood donation should take place in huge numbers to overcome this shortage. Awareness programmes to enhance knowledge and motivation for donation can be implemented with ease. The study revealed that there is a positive attitude towards the voluntary blood donation among medical and non-medical students. Though they have good knowledge of blood donation only a few donated in the past due to inadequate knowledge and awareness of blood donation.

LIMITATION

A small sample size, not giving open ended questionnaire to assess the knowledge score in depth are a few limitations of the study. Large scale studies, inclusion of pre test and post test questionnaires after an induction session on blood donation would throw more light on the comparative attitude between different target student groups.

CONCLUSION

We need to improve voluntary blood donation by implementing programs in terms of educational sessions, media representations, brochure distribution and creating awareness both among medical and non-medical students on blood donation. Studying the knowledge on blood donation among students can be a baseline for health care professionals as they contribute in an educational

platform on blood donation at national and global Level Perception such as not being fit for blood donation, fear of being anaemic, fear of health risk after donation and lack of information where when and how to donate blood, were the major reasons for not donating blood. Hence, proper education, motivation and guidance should be provided to encourage blood donation among both medical and non-medical students.

REFERENCES

- [1] Gobezie MM, Asrie F, Shiferaw E, Woldu B, Yihunew Y, Asmelash D, et al. Knowledge, attitude and practice regarding blood donation among graduating undergraduate health science students at the university of Gondar, Northwest Ethiopia. *Ethiop J Health Sci.* 2018;28(5):571-82.
- [2] Abolfotouh A, Al-Assiri MH, Al-Omani M, Al Johar A, Al Hakbani AS, Alaskar AS. Public awareness of blood donation in Central Saudi Arabia. *Int J Gen Med.* 2014;7:401-10.
- [3] Raghuvanshi B, Pehlajani NK, Sinha MK. Voluntary blood donation among students-a cross-sectional study on Knowledge and Practice Vs. Attitude. *J Clin Diagn Res.* 2016;10(10):EC18-EC22.
- [4] Gebresilase HW, Fite RO, Abeya SG. Knowledge, attitude and practice of students towards blood donation in Arsi University and Adama science and technology university: A comparative cross sectional study. *BMC Hematol.* 2017;17:20.
- [5] Anwer MO, Ul Fawwad SH, Anwer S, Ali A. Attitude toward blood donation among medical and nonmedical students across Karachi. *Asian J Transfus Sci.* 2016;10(2):113-17.
- [6] Vásquez M, Ibarra P, Maldonado M. Blood donation: Knowledge and attitudes of a university population in Chile. *Rev Panam Salud Publica.* 2007;22:323-28.
- [7] Uma S, Arun R, Arumugam P. The knowledge, attitude and practice towards blood donation among voluntary blood donors in Chennai, India. *J Clin Diagn Res.* 2013;7(6):1043-46.
- [8] Bharatwaj RS, Vijaya K, Rajaram P. A descriptive study of knowledge, attitude and practice with regard to voluntary blood donation among medical undergraduate students in Pondicherry, India. *J Clin Diagnostic Res.* 2012(Suppl-2);6:602-04.
- [9] Aslami AN, Jobby A, Simon S, Nazarudeen N, Harigopal N, Ramees M, et al. Assessment of Knowledge, Attitude and Practice (KAP) of blood donation among MBBS students of a medical college in Kollam, Kerala. *Journal of Evolution of Medical and Dental Sciences.* 2015;4(35):6086-95.
- [10] Mamatya A, Prajapati R, Yadav R Knowledge and practice of blood donation: A comparison between medical and non-medical Nepalese students. *Nepal Med Coll J.* 2012;14(4):283-86.
- [11] Hossain Parash MT, Ayudurai T, Murthy KD, Shimmi SC, Hossain AT, Ghosh BK. Comparison of knowledge about voluntary blood donation among the medical and non-medical students of Universiti Malaysia Sabah. *BJMS [Internet].* 2017 [cited 18Apr;2019];11(3):13-18.
- [12] Alanazi MT, Elagib H, Aloufi HR, Alshammari BM, Alanazi SM, Alharbi SF, et al. Knowledge attitude and practice of blood donation in Hail University. *Int J Community Med Public Health.* 2018;5:846-55.
- [13] Alanazi MT, Elagib H, Aloufi HR, Alshammari BM, Alanazi SM, Alharbi SF, et al. Knowledge attitude and practice of blood donation in Hail University. *Int J of Com Med Public Health.* 2018;5(3):846-55.
- [14] Wiwanitkit V. Knowledge about blood donation among a sample of Thai university students. *Vox Sang.* 2002;83(2):97-99.
- [15] Salaudeen AG, Odeh E. Knowledge and behavior towards voluntary blood donation among students of a tertiary institution in Nigeria. *Niger J Clin Pract.* 2011;14:303-07.
- [16] Karacan E, Seval GC, Aktan Z, Ayli M, Palabiyikoglu R. Blood donors and factors impacting the blood donation decision: Motives for donating blood in Turkish sample. *Transfusion and Apheresis Science.* 2013;49(3):468-73.
- [17] Majdabadi HA, Kahouei M, Taslimi S, Langari M. Awareness of and attitude towards blood donation in students at the Semnan University of Medical Sciences. *Electron Physician.* 2018;10(5):6821-28.
- [18] Mohammed S, Essel HB. Motivational factors for blood donation, potential barriers, and knowledge about blood donation in first-time and repeat blood donors. *BMC Hematol.* 2018;18:36. Published 2018 Dec 20. doi:10.1186/s12878-018-0130-3
- [19] Sadler A, Shi L, Bethge S, Mühlbacher A. Incentives for blood donation: a discrete choice experiment to analyze extrinsic motivation. *Transfus Med Hemother.* 2018;45(2):116-24.

PARTICULARS OF CONTRIBUTORS:

1. Student, 6th term MBBS, Sapthagiri Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India.
2. Associate Professor, Department of Pathology, Sapthagiri Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India.
3. Professor and Head, Department of Pathology, Sapthagiri Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Archana Shetty,
Associate Professor, Department of Pathology, Sapthagiri Institute of Medical Sciences and Research Centre,
Hesaraghatta Main Road, Bengaluru-560090, Karnataka, India.
E-mail: archanashetty2924@gmail.com

FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Mar 21, 2019**

Date of Peer Review: **Apr 05, 2019**

Date of Acceptance: **May 04, 2019**

Date of Publishing: **Jul 01, 2019**