Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies ***NLM ID:*** *101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Indian Citation Index (ICI) Index Copernicus value = 100

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

A Study to observe trends in Voluntary Blood Donation amongst young Students in North India

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ABSTRACT:
Background: The youth of the country, especially college students, can serve as a readily available pool of voluntary blood donors and help tide away some of the scarcity of blood and blood products. This study was conducted to determine the Knowledge, attitude, and practice (KAP) regarding Voluntary Blood Donation among medical undergraduate students and other students and to assess the factors which can lead to a subsequent increase in the same. **Method:** A survey was conducted amongst 1000 undergraduate medical students and other students studying in various Medical Colleges in NCR in India, using a structured, self-administered questionnaire, survey. **Results:** The mean age of the participating students was 22.1 years with a standard deviation of 1.2 of which 59% were females. 71.2% and 61.4% students had correct knowledge regarding interval between blood donation for males and females respectively but the knowledge regarding common causes of deferral was less. Posters and pamphlets were the most common sources of information regarding blooddonation.92.6% of students had a good attitude towards blood donation. 127 (25.4%) students had donated blood previously and 17 (3.4%) of them had donated blood more than once in a year. **Conclusion:** The students had a fair knowledge of VBD and the majority had a favorable attitude towards it. Steps should be taken to increase the awareness regarding VBD since early sensitization towardsits importance can motivate students to become voluntary blood donors, making them major contributorsto the blood donor pool throughout their adulthood and help in overcoming blood shortage in the country.
Keywords: Knowledge, Attitude, Practice (KAP), Voluntary Blood Donation (VBD), medical students

Received: 18 September, 2022 Accepted: 22 October, 2022

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This article may be cited as: Gulati P, Babbar K, Tomar S. A Study to observe trends in Voluntary Blood Donation amongst young Students in North India. J Adv Med Dent Scie Res 2022;10(11):74-79.

INTRODUCTION

Blood transfusion is an essential component of health care services since blood and blood products are essential to care for people with traumatic injuriesin emergencies, disasters, and accidents; patients undergoing advanced medical and surgical procedures. Women during pregnancy and childbirth; children with severe anemia due to malaria and malnutrition as well as patients with blood and bone marrow disorders or inherited disorders of hemoglobin and immune deficiency conditions.[1] Hence, the importance of blood cannot be undermined in this modern era. Despite this fact, we see a dearth in the number of voluntary blood donors. WHO estimates that blood donation by 1% of a nation's population is the minimum needed to meet the nation's most basic requirements for blood.[2]As per the above norm, India's minimum demand for blood is around 13.1 million blood units (1% of 1.3 billion population). But as per a report by the National AIDS Control Organization (NACO) India, in 2017, the annual collection of blood in the country was 11.1 million units.[3] This unmet need for blood not only affects the patients in critical need of blood andits components, but also leads to a trend of paid and professional donors, who carry along with them a high risk of transmitting several blood borne infections calledtransfusion transmitted diseases (TTIs).

In such a grim scenario where there is a disparity between the amount of blood required and the amount of blood readily available for transfusion, adequate and reliable supply of safe blood can only be assured through a stable base of regular, voluntary and unpaid donors who are the safest group of donors because the

prevalence of blood borne infections is lowest amongst them.[4]

WHO's goal is 100% voluntary blood donation, the youth of the country. College students can play a significant role in providing a large pool of potentially safe blood donors since they are usually healthy and more likely to be disease free.

Several studies have been undertaken in the pastto assess the knowledge, attitude, and practice of blood donation among college students. These studies help in projecting the perceptions regarding blood donation among the youth of the country and help the policy and decision makers to take the correct measures to increase awareness about blood donation and promote voluntary blood donation in the country. This can help in overcoming the shortage of blood and its componentsand ensure that timely and safe blood transfusions can be provided to all the patients in need.

This study was conducted with the objective of determining the knowledge, attitude, and practice (KAP) regarding voluntary blood donation (VBD) among medical undergraduate college students and compare with other students in National Capital Region, India and to assess thefactors which can bring about a subsequent increase in the same.

METHODS

Study design and Population**:** A descriptive cross-sectional study was conducted among the undergraduate MBBS students and other students in the national capital region of India, from May 2019 to October 2019. The study population consisted of 1000 students, 500 from each group, who participated voluntarily in the survey, in the age group of 21 - 23 years. The medical students consisted of students from medical, dental, nursing, and paramedical colleges, while other students comprised of engineering and commerce and arts colleges students.

QUESTIONNAIRE

The questionnaire, designed to obtain the students' knowledge, attitude, and practice towards voluntary blood donation consisted of four sections. It was based on blood donor selection and referral guidelines-2017 by National AIDS Control Organization (NACO), New Delhi; India and Transfusion Medicine Technical Manual by Directorate General of Health Services (DGHS), Ministry of Health and Family Welfare, India.[6,7] Section I solicited general demographic details of the students. Sections II to IV consisted of multiple-choice questions from which the students selected their responses, containing questions which assessed knowledge of the students regarding blood donation and aimed to assess the attitude of the students towards blood donation.

METHODOLOGY

The questionnaires were distributed amongst the students who voluntarily participated in the study and written consent was taken. Confidentiality of personal data was assured to the participants.

STATISTICAL ANALYSIS

1000 completed questionnaires were then coded and spreadsheets were created for data entry using Microsoft Excel. The data was analyzed using Stata Corp. 2021. Stata Statistical Software: Release 17. College Station, TX: Stata Corp LLC.

RESULTS

A total of 1000 students with the mean age of 22.1 ± 1.2 years participated in the study, 500 from medical colleges and 500 from other colleges. Demographic data showed that 552 (55.2%) of the participants were females and 448 (44.8%) were males.

71.2% students had correct knowledge regarding interval between blood donation for males and 61.4% knew about the same for females. 55.2% were aware about the donor weight eligibility criteria, whereas 89.8% had knowledge about the age eligibility for blood donation. Majority of the students were not aware of the deferral period for common causes of deferral for blood donation like tattooing and ear piecing, antibiotic intake, and dental manipulation with only 12.6%, 12.2% and 6.4% of the students respectively being aware of the same. Only 18% of the students were aware of the average time taken for blood donation. (Table 1)

Table 1: Knowledge assessment regarding blood donation practice and donor eligibility criteria- medical students

S.no.	Question	Correct Responses	Percentage
1.	Minimum time interval between two blood donations in males	356	71.2%
2.	Minimum time interval between two blood donations in females	307	61.4%
3.	Average time duration during a blood donation process	90	18%
4.	Age eligibility criteria for blood donation	449	89.8%
5.	Weight eligibility criteria for donation	276	55.2%
6.	Minimum quantity of blood donated at one time	223	44.6%
7.	From where blood is usually collected?	389	77.8%
8.	How long after alcohol consumption can a person donate blood	297	59.4%
9.	Number of components produced from a unit of blood	195	39%
10.	Duration for deferral after ear piercing or tattooing	63	12.6%
	Duration for deferral after Immunization with Hepatitis B immunoglobulin		

11.	or rabies	115	23%
12.	Duration of deferral after dental manipulation	32	6.4%
13.	Component transfused in a person suffering from anaemia	298	59.6%
14.	Component transfused in a person with INR>1.5	231	46.2%
15.	Component transfused in a person with platelets<10000/µl	308	61.6%
16.	After how long a person on antibiotics can donate blood?	61	12.2%
17.	Knowledge about health conditions leading to permanent deferral	175	35%
18.	Knowledge about dental diseases which do not allow blood donation.	392	78.4%

Table 2: Knowledge assessment regarding blood donation practice and donor eligibility criteria- other students (not medical students)

S.no.	Question	Correct Responses	Percentage
1.	Minimum time interval between two blood donations in males	256	51.2%
2.	Minimum time interval between two blood donations in females	207	41.4%
3.	Average time duration during a blood donation process	90	18%
4.	Age eligibility criteria for blood donation	350	70%
5.	Weight eligibility criteria for donation	276	55.2%
6.	Minimum quantity of blood donated at one time	223	44.6%
7.	From where blood is usually collected?	389	77.8%
8.	How long after alcohol consumption can a person donate blood	297	59.4%
9.	Number of components produced from a unit of blood	89	17.8%
10.	Duration for deferral after ear piercing or tattooing	63	12.6%
11.	Duration for deferral after Immunization with Hepatitis B immunoglobulin or rabies	115	23%
12.	Duration of deferral after dental manipulation	32	6.4%
13.	Component transfused in a person suffering from anemia	198	39.6%
14.	Component transfused in a person with INR>1.5	0	0
15.	Component transfused in a person with platelets<10000/µl	0	0
16.	After how long a person on antibiotics can donate blood?	81	16.2%
17.	Knowledge about health conditions leading to permanent deferral	375	75%
18.	Knowledge about dental diseases which do not allow blood donation.	32	6.4%

Figure 1: Knowledge regarding blood donation (medical students)

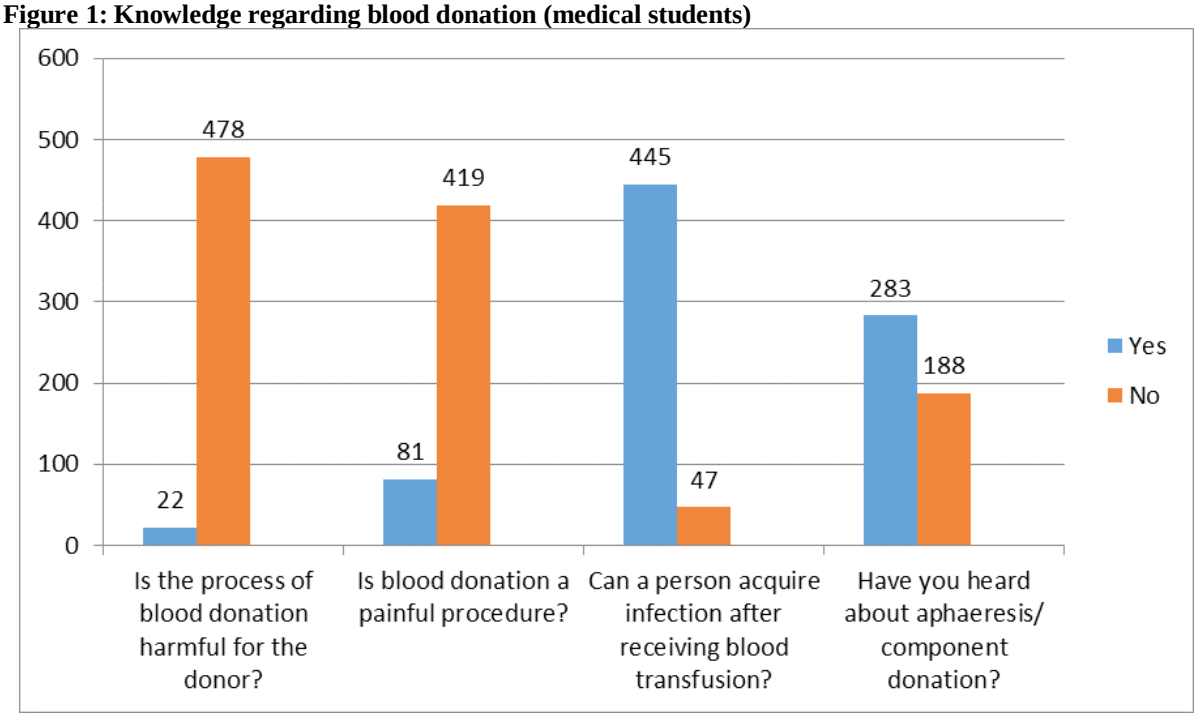
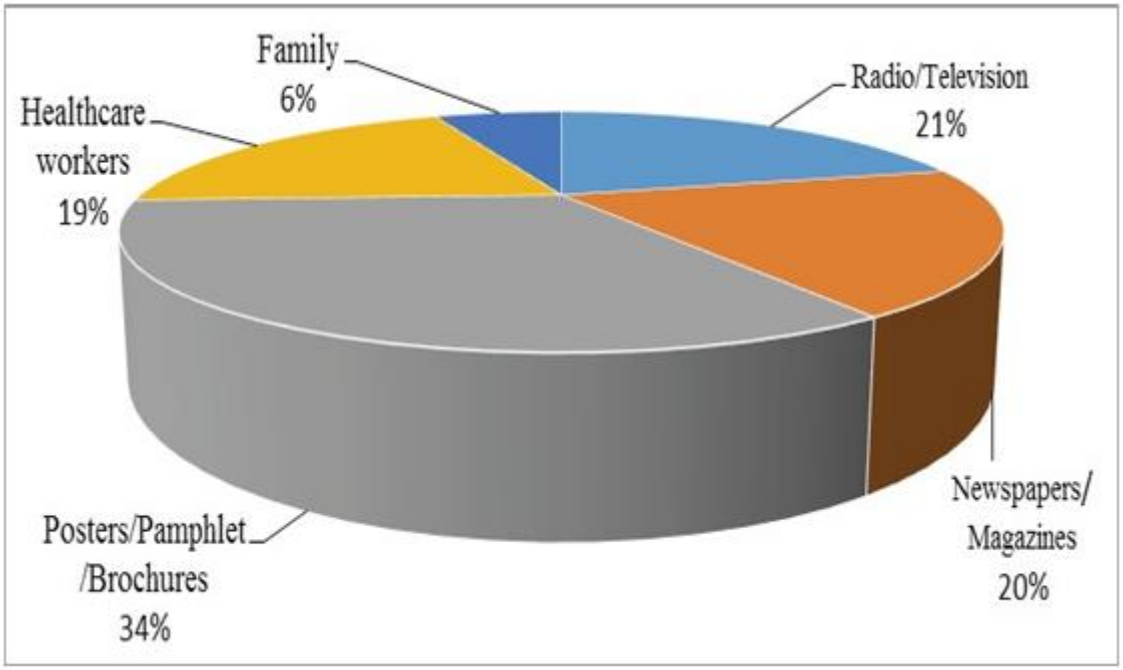


Figure 2: Sources of information about voluntary blood donation (both medical and other students)



On assessing the source of information regarding voluntary blood donation, it was found that most of the students (34%) knew about voluntary blood donation from posters and pamphlets followed by radio or television (21%), newspapers and magazines (20%), healthcare workers (19%) and only 6% had known about the same from a familymember as depicted in Figure 2.

Table 2: Attitude of students regarding blood donation

S.no.	Attitude Based Questions	Response	Percentage
1.	**What do you think about blood donation?**		
a	Good	463	92.6%
b	Bad	27	1.4%
c	Neutral	7	5.4%
2.	**What do you think is the best source of donor blood?**		
a	Voluntary donors	444	88.8%
b	Replacement donors	24	4.8%
c	Paid/ Professional donors	14	2.8%
d	Do not know	14	2.8%
3.	if you were asked for blood donation to strangers/familymembers in dire need for blood?		
a	Would readily donate	321	64.2%
b	Would hesitate	28	5.6%
c	Depends on the situation	140	28%
4.	**What was your reason for not donating blood?**		
a	I didn't think of it	98	26.2%
b	Lack of opportunity	90	24.1%
c	Fear of needle/ fear of sight of blood	52	13.9%
d	Blood donation can lead to anemia	28	7.5%
e	Lack of time	47	12.6%
f	No one has ever asked me to donate blood	38	10.1%
g	Objection from family members	20	5.3%

ATTITUDE REGARDING BLOOD DONATION

92.6% of students had a positive outlook towards blood donation. Most of the students (64.2%) were willing to donate blood to family members or strangers if needed. In our study, 88.8% thought that the best source of donor blood is a voluntary donor. The data indicates that the most common reason (19.6%) for not donating blood was that they had never really thought about it and 18.8% students had not donated blood due to the lack ofopportunity. (Table 2)

Table 3: Practice of blood donation

S.no.	Practice Based Question	Yes	No
1.	Have you donated blood earlier?	127	373
2.	Do you want to be a regular voluntary donor?	301	199
3.	Have you previously been deferred for blood donation?	70	430
4.	Did you face any problem after blood donation?	28	99
5.	**How often do you donate blood?**		
a	One time in a year	40 (8%)	
b	More than one time in a year	17 (3.4%)	
c	Rarely	70 (14%)	
d	Never	373 (74.6%)	
6.	**What was your reason for blood donation?**		
a	Regular donor	17 (13.3%)	
b	Voluntary occasional donor	90 (70.8%)	
c	Donor to help friends/family	20 (15.7%)	

Out of all the students who had participated in this study, 127 (25.4%) had donated blood in the past and ofthese, 17 (13.3%) students had donated blood more thanone time in a year in the past. 90 (70.8%) students had donated blood on a voluntary basis. 70 (55.1%) students had been previously deferred from blood donation. Out of those who had donated blood, 28 students i.e., 22% of the students had experienced some type of an adversedonor reaction
following blood donation. The findings are depicted in Table 3.

DISCUSSION

Provision of safe blood and its components to all the patients in need of transfusion is a global concern. However, many people are ignorant of the blood donation process and fears and misconceptions regarding blood donation are major deterrents against voluntary blood donation. This can only be overcome by encouraging the young and relatively healthy population of the country like the college students to become voluntary blood donors. Thus, if sensitized early during their education regarding the significance of blood donation, they can set a good example for the society and by being blood donors themselves, can help motivate and encourage the masses towards this noble act and allay any fears or doubts that have taken home in the minds ofthe people. This can help in creating a crucial reservoir of safe blood for transfusion in the country. Thus, knowing the level of their knowledge, attitude, beliefs, and practices regarding blood donation can help us in taking the correct measures for formulating better blooddonation promotional activities, to encourage increased people to come forward and donate blood.

In our study, most of the students had good knowledge regarding the eligibility criteria for blood donation although knowledge regarding deferral criteria was less. Regarding the interval between two blood donations, 71.2% and 61.4% students respectively were aware of interval between donations in males and females. And for non-medico students, 51.2% males and 41.4% females were aware of interval. Desai et al reported only 30.2% and 15% medical students to be familiar with interval between blood donation for males and females respectively. The majority of the respondents in our study, i.e. 89.8% knew about the suitable age group of blood donation. Similar findings were observedin the studies by Chopra et al (90%).[9] On the other hand, Desai etal and Chauhan et al found that most of the students, 80% and 82% respectively were aware of the weight eligibility for blood donation.[10,15]Mishra et al conducteda KAP study on college students and found that students who were blood donors had more knowledge and positive attitude regarding blood donation than those who were non donors and the differences were statistically significant.[16]

To counter this risk of TTIs, it is necessary to provide specific training on communication and counselling skills for allstaff involved in any stage of blood donor counselling so that deferral can be done properly increasing the chances for safe blood collection. Majority of the students (95.6%) in our study believed that blood donation is not a harmfulprocess which was similar to the findings by Chopra et al (83.8).[9] The college curriculum should consist of teaching the basics of voluntary blood donation (VBD) to the students so that with increased knowledge and awareness, they become regular voluntary blood donors and also motivate their peers and general population to come forward and donate, by serving as role models forthem.

In our study, most of the students (92.6%) had a good attitude towards blood donation and 64.2% of the students were willing to readily donate blood to patients in need. Chauhan et al reported 91% students having a positive attitude towards blood donation with 84% willing to donate to strangers if required.[15] Melku et alin their study on health sciences students in Ethiopia found that 79.2% students had a positive attitude towards blood donation with 85.5% students expressing intent to donate bloodin future.[8]

Even though most of the studies reported favorable attitude towards blood donation, the actual practice of the same was drastically lower. We found in our study that only 127 (25.4%) students had donated blood earlier. Similar results were seen in the studies conducted in different parts of India like Chopra et al.

Most of these studies were conducted on medical or health sciences students. But a few comparative studies between medical and non-medical students or only on non-health sciences students have also been conducted. The medical students' primary reason for non- donation was that nobody had asked them to donate and lack of opportunity whereas for the non-medical students it was fear of donation and the procedure.

In our study, the most common reason for not donating blood was that the donors had never thought about it and due to a lack of opportunity. Similarly, Chopra et al and Chauhan et al also reported that 56.5% and 53% students respectively quoted lack of opportunity and not being called upon for blood donation to be the reasons behind not donating.[9,.18] Mishra et al reported that the most common reason (27.4%) for not donating blood was fear of needles.[16] Thus there is a need to create more opportunities for blood donation by conducting more blood donation awareness camps and by encouraging the students to actively participate in these activities. Steps should be taken to ensure easy accessibility of blood donation centers and convenient timing for donation to accommodate all types of donors especially the students and the working class. At the same time efforts should be made by blood bank staff to allay the donors' fears and apprehensions and ensure that blood donation is a comfortable and fulfilling experience for them and for this, specific training on communication and counselling skills should be provided to all the blood bank staff involved in any stage of blood donationprocess.

CONCLUSION

The majority of the students in our study were cognizant of the basic eligibility criteria for blood donation along with a positive attitude towards blood donation. 60.2% of students were willing to readily donate blood in the future although only 25.4% had donated blood in the past. The most common reason for not donating blood was that the students had never really thought about it. Broadcastand print media were the most common sources of VBD information. Keeping in mind the large population of healthy students in colleges and universities across the country that are eligible to donate blood, blood donation campaigns targeted at them would help in motivating increasing numbers to donate blood.

ACKNOWLEDGMENT

The authors would like to thankthe study participants for their participation and kind cooperation throughout the study.

DECLARATIONS

FUNDING

Nil

CONFLICT OF INTERESTS

Nil

ETHICAL APPROVAL

The study protocol was reviewed by the Ethical Committee of Government Medical College and Rajindra Hospital and was granted ethical clearance.

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