Original Research Article

A Cross Sectional Study to Assess the Knowledge, Attitude and Practice towards Voluntary Blood Donation amongst Undergraduate Students of a Medical College 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 studentsand to assess the factors which can lead to a subsequent increase in the same.

Method: A cross-sectional descriptive study was conducted amongst 500 undergraduate medical students studying at Government Medical College, Patiala, Punjab using a structured, self-administered questionnaire regarding KAP.

Results: The mean age of the 500 participating students was 20.46 years with a standard deviation of 1.5 of which 55.2% 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 blood donation.92.6% 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 about VBD and the majority had a favourable attitude towards it. Steps should be taken to increase the awareness regarding VBD since early sensitisation towards its importance can motivate students to become voluntary blood donors, making them major contributors to 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*

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Introduction

Blood transfusion is an essential component of healthcareservices since blood and blood products are essential to care for people with traumatic injuries in emergencies, disasters and accidents; patients undergoing advanced medical and surgical procedures;

women during pregnancy and childbirth; children with severe anaemia due to malaria and malnutrition as well as patients with blood and bone marrow disorders or inherited disorders of haemoglobin and immune deficiency conditions.[1]Hence, the importance of blood can't be undermined in this modern era. Despite this fact, we see a dearth in the amount of the voluntary blood donors. WHO estimates that blood donation by 1% of a nation's population is generally 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 Organisation (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 and its components, butalso leads to a trend of paid and professional donors, who carry along with them a high risk of transmitting several blood borne infections called transfusion 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]

In total, 79 countries collect over 90% of their blood supply; however 56 countries collect more than 50% if their blood supply from family/replacement or paid donors.[5] To overcome this situation and to progress towards WHO's goal of 100% voluntary blood donation, the youth of the country, especially the college students can play a major 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 past to assess the knowledge, attitude and practice of blood donation among college students.Such 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 components and 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 in Government Medical College, Patiala, Punjab, India and to assess the factors 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 of Government Medical College and Rajindra Hospital Patiala, Punjab, India, in the month of March 2019. The study population consisted of 500 MBBS students in the age group of 17-25 years from 1st, 2nd, 3rd and 4th professional years.

Pretesting of Questionnaire: A self-administered, structured questionnaire was developed by 5 Academicians. The investigator conducted a pilot study on 20 MBBS students to gain feedback on the overall acceptability of the questionnaire in terms of length and language clarity. Based on their feedback, the questionnaire did not require any corrections. These students were not considered as part of the data collection for the study.

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. Section II consisted of 22 questions which assessed knowledge of the students regarding blood donation. Section III comprised of 4 questions, aimed to assess the attitude of the students towards blood donation. Section IV consisted of 6

questions regarding the practice of blood donation among the students.

Methodology: The questionnaires were distributed amongst the students who were requested to fill in a written consent form and explained briefly regarding the objectives of the study and asked to choose the single best answer for the questions from the multiple choices given. Confidentiality of personal data was assured to the participants.

Statistical Analysis: 500 completed questionnaires were then coded and spreadsheets were created for data entry using Microsoft Excel. The data was analysed using SPSS 20 (SPSS Inc., Chicago, IL, USA) Windows software program.

Results

A total of 500 students with the mean age of 20.46 ± 1.5 years participated in the study. Demographic data showed that 276 (55.2%) of the participants were females and 224 (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 the 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 only12.6%, 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.

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 donation 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 is blood 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%
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 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 can a person on antibiotics donate blood?	61	12.2%
17.	Knowledge about health conditions leading to permanent deferral	175	35%
18.	Knowledge about when a person can donate blood at Rajindra Hospital	392	78.4%

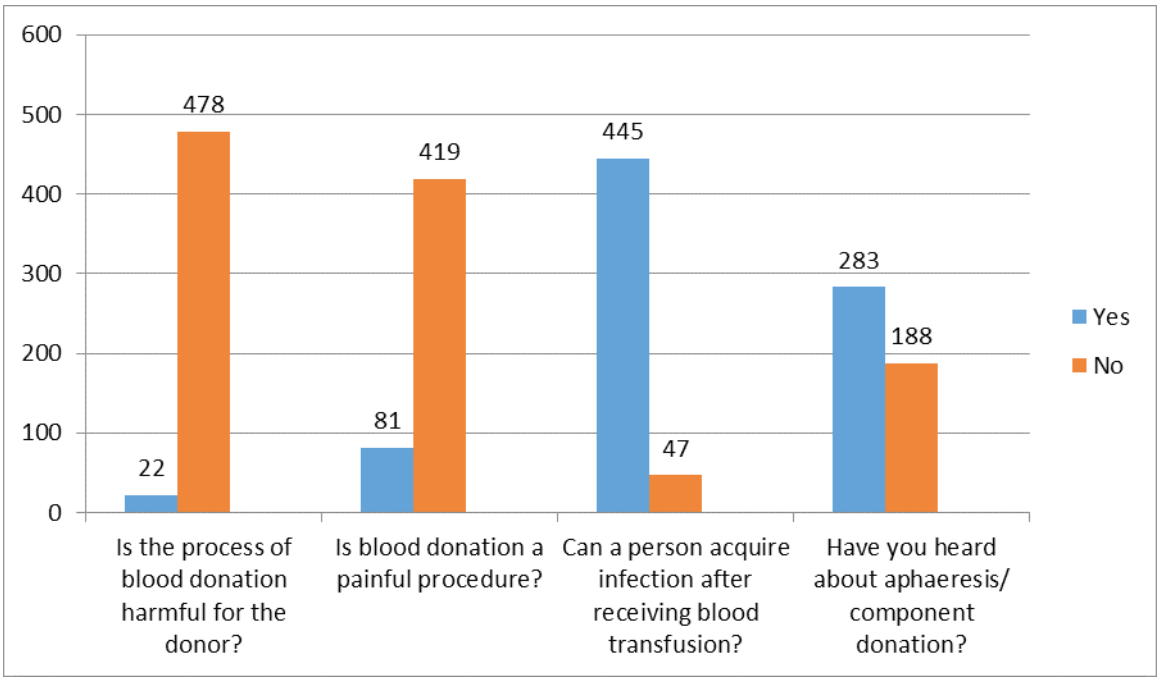

Figure 1: Knowledge regarding blood donation

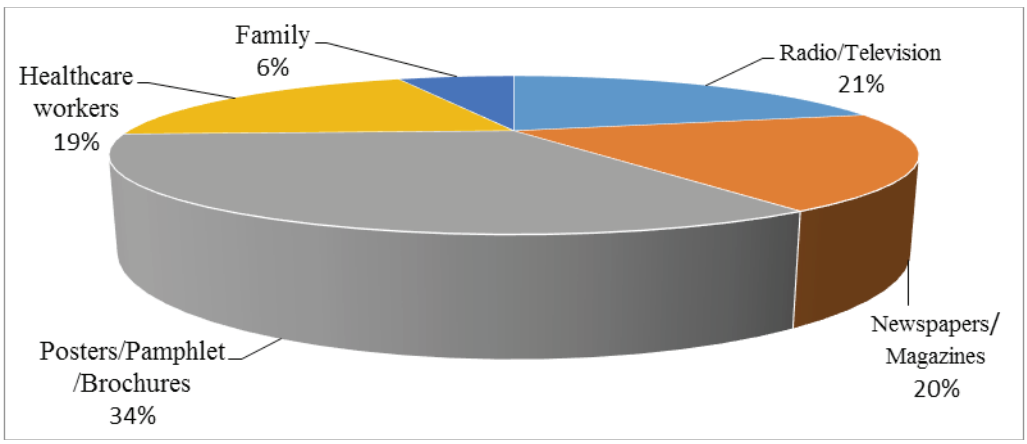

Figure 2: Sources of information about voluntary blood donation

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 family member 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	Don't know	14	2.8%
3.	What would you do if you were asked for blood donation to strangers/family members 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 anaemia	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% students had a positive attitude towards blood donation. Majority 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 of opportunity. (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 of these, 17 (13.3%) students had donated blood more than one 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 ofan adverse donor 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 in the course of 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 of the 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 blood donation promotional activities, to encourage more and more people to come forward and donate blood.

In our study, majority 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. In an Ethiopian study by Melku et al it was found that 67.8% students knew about the interval between blood donations while Chopra et al found 48.9% students were aware of the same.[8,9] Desai et al reported only 30.2% and 15% medical students to be familiar with interval between blood donation for males and females respectively.[10]Majority of the respondents in our study i.e. 89.8% knew about the suitable age group of blood donation.Similar findings were observed in the studies by Chopra et al (90%), Kowsalya et al (87.5%) and Aslami et al (85%) whereas Syiemlieh et al reported that only 50% students were aware of the same.[9,11,12,13]However, in our study, the knowledge regarding weight eligibility was less and only 55.2% students knew about it, which was similar to the findings by Meinia et al (51.3%).[14] On the other hand, Desai et al 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 conducted a 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]

Our study showed 89% students believed that there were chances of acquiring an infection while receiving a blood transfusion similar to the reporting by Malako et al where 87.2% people believed in this possibility.[17] To counter this risk of TTIs, it is necessary to provide specific training on communication and counselling skills for all staff 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 harmful process 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 for them.

In our study, the majority 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. Malako et al in their study on healthcare workers in Ethiopia found that 58.5% of the respondents had a good attitude towards blood donation with 99.1% feeling that blood donation is good and 56.4% of the healthcare workers were willing to donate blood.[17] 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 blood in future.[8]

Even though most of the studies reported favourable 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 Indialike Chopra et al, Syiemlieh et al, and Chauhan et al where 23%, 27.3% and 22.9% of the students had ever donated blood respectively.[9,13,15]Even lower blood donation practice was seen in studies by Kowsalya et al and Verma et al where only 13.2% and 16.5% students respectively had donated blood earlier.[11,18]However, relatively higher donation practice was reported byMeinia et al,Sahoo et al and Sabu et

al who reported that 43.4%,47.7%, and 38% students respectively had donated blood earlier.[14,19.20]Thus, differences exist between the levels of donation in different parts of the country and low levels of blood donation were also reported in other parts of the world as byMajdabadi et al in Iran where just 9.74% students had donated blood.[21]In a study by Siddiqui et al in Pakistan, 15.2% medical students and 20% non-medical students were found to be blood donors.[22] Malako et al reported blood donation in students in Ethiopia to be 21.6% , whereas studiesby Elias et al in Tanzania showed 30% and Ugwu et al in Nigeria reported 35.4%students had donated blood earlier.[17,23,24] Thus even though the levels of blood donation stay in different parts of the world, a large disparity can be also be seen in the equitable distribution and availability of blood even though WHO strives towards the universal access to safe blood and blood products for the universal health coverage and advocates for the rational use of blood.[25] We should also work on providing timely access to those who need blood via effective organization and integrated blood supply networks.

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. Gebresilase et al conducted a study on undergraduate Health Science and Non-Health Science University students in Ethiopia and reported a significant good level of knowledge difference between health science students (79.4%) and non-health science students (13.9%). In addition, significant favourable attitude differences were observed between health science students (46.7%) and non-health science students (35.6%). But increased knowledge in the Health Science students was not seen to have any positive correlation with practice with similar blood donation levels seen in both groups.[26]Raghuvanshi et al conducted a study on medical and non-medical students and found that as expected, knowledge was better among students in medical field as compared to non-medical field but blood donation was more common among non-medical students as compared to medical students. 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.[27]Kittu et al conducted a study among students in a polytechnic college and found that the majority had inadequate knowledge regarding blood donation and 58.8% students had never donated blood and only 30.7% donors were willing to become regular donors. Majority (33.1%) reported lack of opportunity followed by fear of getting infected (22.1%) as reasons for not donating.[28] This shows that although the medical or health sciences students have better knowledge regarding blood donation as compared to non-health sciences students, it does not necessarily translate into better practice.

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.[9.15]According to Verma et al, the most common reason (50.5%) among students for not donating blood was the lack of awareness regarding when and where to donate.[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 centres and convenient timing for donation so as 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 donation process.

Conclusion

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% 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. Broadcast and 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 countrythat are eligible to donate blood, blood donation campaigns targeted at them would help in motivating increasing numbers to donate blood.

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Declarations

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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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