

## KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING BLOOD DONATION AMONG UNDERGRADUATE MEDICAL STUDENTS - A CROSS SECTIONAL STUDY

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### Abstract

**Background:** Blood is a crucial lifesaving component for various medical conditions. Despite increasing awareness of the importance of blood, there is a wide gap between the demand and supply of blood and its various components. The aim was to determine the knowledge, attitudes and practices on blood donation among the medical college students. **Materials and Methods:** A cross sectional study was conducted in a medical college in Chennai in December 2019 among the medical students. Universal sampling was done for this study. The pre-validated questionnaire which had questions regarding the knowledge, attitudes and practices of blood donation was used for data collection. The data was analyzed using the SPSS software version 22. **Result:** Out of 452 students participated in the study, of which 42.3% were male and 57.7% were female. The age range was 17-25 years, the mean age being 20.4±1.2 years. Knowledge of Voluntary Blood Donation: The mean knowledge of participants was 78.8%. All the participants were aware of their blood groups. Attitude related to blood donation: 98% study participants felt that blood donation is a noble act and 89% felt that people should donate blood and were themselves willing to donate blood. Practice Relating to Blood Donation: Out of the 452 study participants, only 80 (17.7%) had donated blood so far. 93.8% did not expect any incentives for the blood donation. **Conclusion:** The MBBS students had a relatively good knowledge and a favorable attitude about voluntary blood donation. However, the prevalence of blood donation is still low among the students. The study emphasizes the importance of conducting awareness programs and motivating students regarding voluntary blood donation.

## INTRODUCTION

Blood is a vital component and blood donation is a noble act that can help in saving the humans life. Blood transfusion is essential for optimum management of emergency conditions such as severe accidents, shock and resuscitation. Voluntary blood donation is the essential means by which blood can be stored and made available for use<sup>1</sup>. In countries like India there exists a considerable gap between the need and the accessibility of blood.<sup>[1]</sup> According to the World Health Organization (WHO), at least 1% of the country's population should donate blood voluntarily to meet the basic requirement for blood

and blood products.<sup>[2]</sup> The WHO theme "Safe blood starts with me, blood saves lives." for 2000 AD, also emphasized on the need for voluntary blood donation. The WHO recommends that for every 1,000 people, a target of 10-20 donors is required to provide adequate blood supplies. As per government data, 34 per 1,000 eligible people must donate blood once in a year to address the estimated clinical demand. studies say that the gap between the demand and supply in India can be explained as 2.5 donations per 1000 eligible people.<sup>[3]</sup> Despite extensive efforts and a number of blood donation programs being conducted, the availability of blood still remains low to meet the increased demand. Majority of blood

donations in India are done on replacement basis, many a times one has to pay for professional donor for replacement. However, paid blood donation has been banned in India since 1994.<sup>4</sup> Young individuals including medical students who are healthy, enthusiastic and approachable as a group, if recruited they may become future donors and motivators.<sup>[3]</sup> Medical college students can serve as a easily available pool of voluntary blood donors for the attached medical college hospitals and try to solve the scarcity of blood and blood products. Some of the studies involving medical students have stated concern on the minimal level of awareness and poor voluntary blood donation practices among them. Some studies have also shown inadequate blood donation practice among the students despite relatively good knowledge and favorable attitude toward voluntary blood donation. Thus, there is a need to explore the different factors that can contribute toward voluntary blood donation.<sup>[4,5]</sup> After a detailed review of the existing literature, we wanted to study the knowledge, attitudes and practices of blood donation among medical students at our medical college.

## MATERIALS AND METHODS

The study was conducted among undergraduate medical students of Sri Muthukumaran Medical College Hospital and Research Institute Chennai, Tamil Nadu, in the month of December 2019. It was a cross sectional, observational study. A total of 550 students were enrolled by universal sampling method. Those who refused to participate and those who could not be contacted during the data collection were excluded from the study. A total of 452 students responded for the study.

The purpose and nature of the study was explained to all students who were part of the study, and an informed consent for participation was taken. A pretested structured questionnaire was used for data collection. Basic information such as sociodemographic data and information regarding the knowledge, attitude and practice of blood donation was collected using the same questionnaire. After the collection of the baseline information, a brief interactive awareness session through PowerPoint presentation addressing voluntary blood donation, was conducted for the participants. The participants anonymously responded to the items on the questionnaire. Data analyzed using SPSS version 22. The data collected was entered using SPSS software version 22 and analyzed using frequency, mean and percentage. Chi-square test was used for testing the significance between the proportions.

**Consent and Ethical Issues:** The approval of Institutional Ethics Committee was taken before starting the study.

## RESULTS

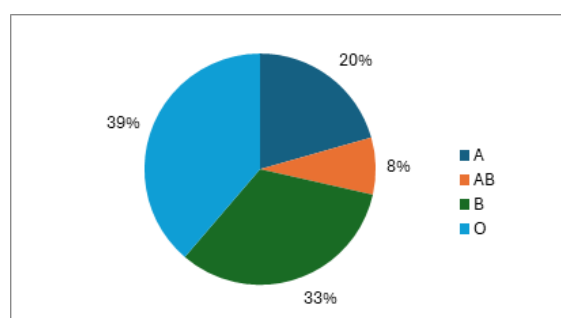
A total of 452 students participated in the study, of which 42.2% were male and 57.7% were female. The age range was 17-25 years, the mean age being 20.4 years.

### Assessment of knowledge

In [Table 1], the students' response to the questions related to the knowledge of blood donation is shown. The knowledge of blood donation was assessed by questions regarding general knowledge about blood donation, knowledge of criteria for donor selection.

### Knowledge of their own blood groups

All the participants were aware of their blood groups. The distribution of blood groups as reported by the participants is depicted as pie diagram. The most common blood group among the participants was O (39%), B (33%), A (20%).



**Figure 1: Distribution of blood groups among study participants**

Majority of the students answered correctly for the questions related to minimum age, minimum hemoglobin (Hb), minimum weight, minimum time interval between the donations, universal donor, and universal recipient group. About 55% of the participants answered right for the questions related to the minimum interval between two blood donations and volume of blood collected at each blood donation and regarding transfer of infections by receiving blood.

### Attitude towards blood donation

The students' responses for the questions related to attitudes towards blood donation are depicted in table 2. The students showed an overall favorable attitude. 98% of the participants agreed that blood donation is a noble act. About 90% of the students said that they are ready to donate blood when need arises. 92% felt the importance of screening blood before donation. Majority did not expect incentives for blood donation (93.8%).

### Practices relating to blood donation

Out of the 452 study participants, only 17.7% had donated blood so far. Of these, 9.5% students had donated blood only once, 5.8% had donated twice and 3.1% donated more than twice. 19% students were voluntary blood donors, 4.4% donated blood to friend/relative in need. Out of those who donated 22.1% felt happy about the donation. Only 7.5% of

the students received the blood transfusion for various reasons.

### Barriers for blood donation

Majority expressed the Main reason for not donating blood was no one ever being asked for donation and parents did not allow for the donation. Various reason stated by non donors for not donating blood is given in [Table 3].

### Association between sociodemographic variables and blood donation

This study found that blood donation knowledge is significantly associated with age. In particular students aged  $\geq 21$  years had adequate knowledge and positive attitude on blood donation than the younger age group. Our study shows that age and sex had a significant association with attitude about blood donation. Compared to men female had more negative attitude towards donation of blood.

**Table 1: Responses of students to questions on knowledge about blood donation**

S/No	Questions	Correct responses(%)
1	Knowledge of own blood group	100
2	The minimum age required for blood donation	99.6
3	The minimum weight required for blood donation	70.4
4	The minimum Hb needed for blood donation in women	73.5
5	The minimum Hb needed for blood donation in men	65.5
6	Normal amount of blood present in the human body	90.3
7	Minimum time interval between two blood donations	60.6
8	Volume of blood that is usually collected at each donation	53.5
9	The universal blood donor group	97.8
10	The universal recipient blood group	97.3
11	World blood donation day	78.3
12	Can a person be infected by receiving blood transfusion	59.3

**Table 2: Responses of students to questions on attitude about blood donation**

S/No	Attitude	Yes (%)	No (%)	Not sure (%)
1.	Do u think blood donation is a noble act?	98.2	1.8	-
2.	Would you like to donate blood in future?	89.4%	2.2.	8.4
3.	Do you think one can contract infections while donating blood?	59.3	25.2	15.5
4.	Is screening of blood necessary before blood donation?	92.2	2.2	5.6
5.	Blood will be misused by blood bank	11.3	64.1	24.6
6.	Become anemic after blood donation	25	59.8	15.2
7.	Immunity will be reduced after donation	15	68.7	16.3
8.	Will encourage family members to donate blood	82.2	3.3	14.5
9.	Receiving blood from unknown person/ source is against religion	2.2	90.4	7.4
10.	Blood donation is against our religious practice	3.5	92	4.5
11.	expect any reward for blood donation	3.6	93.8	2.8
12.	Is blood bank a safe source for blood?	60.4	28	11.6

**Table 3: Barriers for blood donation**

S/No	Responses	No of responds
1	No one ever asked	158 (35)
2	Not interested	16 (3.6)
3	Don't know where to donate	42 (9.3)
4	I am afraid	16 (3.5)
5	It makes me sick/anemic	40 (8.8)
6	Parents did not allow	58 (12.8)
7	Risk of acquiring infection	42 (9.9)

**Table 4: Association between sociodemographic variables and blood donation**

Sociodemographic Variables		Knowledge		P Value	Attitude		P value
		Adequate N (%)	Inadequate N (%)		Adequate N (%)	Inadequate N (%)	
Age (years)	< 21	88(36.3)	110(51.7)	0.001	92(35.1)	106(55.3)	0.005
	$\geq 21$	155(63.7)	102(48.3)		174(65.9)	86(44.7)	
Sex	Male	106(43.6)	85(40)	0.426	121(46)	70(36.1)	0.029
	Female	135(56.4)	126(60)		145(54)	116(63.9)	

## DISCUSSION

The current study was conducted to assess the medical students' knowledge, attitudes and practices on blood donation. We observed considerably good knowledge among the students regarding blood donation. The current findings are in accordance with

previous study by Niranjana et al,<sup>[4]</sup> and Nandan et al.<sup>[5]</sup>

Being aware of one's own blood group is important because quick arrangement of blood will be easy in emergency situation. In our study, all the students were aware of their blood groups. Similarly high level of awareness (95.7%) regarding blood groups

has been reported by Chauhan et al,<sup>[6]</sup> and Devi et al.<sup>[7]</sup> The reasons for this high level of awareness regarding their own blood may be due to students were asked to fill the information in schools and college application form regarding personal details which includes blood groups. This finding highlights the role and responsibility of the teaching institutions in imparting knowledge and positive attitude for blood donation.

The most common blood group in the present study was O (39%) followed by B (33%), A (20%) and AB (8%). Our findings are in agreement with a study by Chauhan et al.<sup>6</sup> Giri et al. in Maharashtra.<sup>[9]</sup>

In the present study, more than half of the medical students answered correctly for the question on minimum Hb needed for donation and the time interval between two donations. The present observation is similar to that of an earlier study, where more than half of the students answered correctly in a study done in Jammu.<sup>[10]</sup> In another study by Alsalmi et al. less than half of the students knew the time interval between two donations.<sup>[11]</sup>

Half of the study population of the present study had a fair knowledge about the volume of the blood collected in one donation. This observation also is similar to the earlier studies Niranjana et al.,<sup>4</sup> Chauhan et al,<sup>[6]</sup> whereas one of the studies done in Saudi Arabia mentions only 35.2% knew the correct volume of blood collected.<sup>[12]</sup> Good number of the study participants replied correctly for the minimum age limit and minimum weight for blood donation. The current findings are in contrast with the earlier study findings, where about 37.3% of the MBBS students answered correctly for the age limit of the donors.<sup>[13]</sup>

Most of the participants (97.8%) had good knowledge on universal donor and recipient blood group. A similar observation was made in a study by Niranjana et al. where the universal recipient blood group was known by majority of the higher education institution participants, very few of them had the knowledge of universal donor group.<sup>[4]</sup>

The present study outcome shown a positive attitude of the students towards blood donation. 98% agreed that blood donation is a good practice. In a study on the students of different colleges by Amatya M et al,<sup>[14]</sup> says 82.5% of the participants agreed that blood donation as a noble act.

A high proportion of students (89.4%) were reported to have expressed their intent to donate blood in future. The present observation is supported by one of the earlier documented works where about 91% of the participants agreed that blood donation is a good practice and were willing to donate blood Uma et al,<sup>[6]</sup> reported a need for creation of opportunities to donate blood by holding frequent blood donation camps and to be well informed about blood donation, as the motivating factors for the recruitment of more donors.<sup>[7]</sup>

Despite having a considerable good knowledge and willingness to donate blood, the practices were not satisfactory among our participants. only 17.7% of

students had donated blood so far. Of these, 9.5% students had donated blood at least once. The majority of the medical students (93.8%) in our study were of the opinion that no incentives should be offered for blood donation. These findings are supported by Rizwan et al,<sup>[12]</sup> where 20.8% donated blood in their lifetime and 86.8% did not expect any incentives.

Risk of acquiring infections, no one ever being approached for blood donation, parents disapproval, no knowledge about where to donate the blood and fear of ill health were the reasons for not donating blood which is backed by the findings of other works by Hozain et al.<sup>[15]</sup> In a study by Kumari and Raina, the main reasons reported for not donating blood are fear of needle stick injury, the very sight of blood, scared of adverse effects, disagreement of the family members, and never being asked for.<sup>[10]</sup>

The prevalence of blood donors in this study was 17.7%. Similar findings have been reported in studies by Kumari and Raina et al. (13.81%)<sup>16</sup> and Chauhan et al. (22.9%).<sup>4</sup> Our study is one more study that have reported a low prevalence of blood donation (17.7%) in spite of good overall knowledge and favourable attitude.

Through this study it was found out that age had a significant association with both knowledge and attitude towards blood donation, in particular those  $\geq 21$  years. This might be due to the fact that the individuals get matured as they age and feel more responsible towards the society. More access to the information makes the person feel safety and confident and may feel safe to donate the blood. This finding was supported by Govindasamy V et al.<sup>[17]</sup> Females have comparatively more negative attitude for blood donation may be attributed to anaemic status.

Poor practices in spite of having a good knowledge and favourable attitudes observed by the present and former studies highlight the importance of conducting awareness programs, motivational talks. The new medical education curriculum emphasizes upon having practical knowledge, which may be accomplished by implementing educational programs on blood donation. Blood donation camps may be conducted at the institutional levels on a regular basis and encourage the students to participate and celebrate the world blood donation day which falls on June 14th. The students may also be given suitable guidance to approach the institutional blood bank and register their names for blood donation so that they can be approached in times of emergency and whenever needed.

## CONCLUSION

This study emphasizes that the study population has relatively good knowledge and a favourable attitude about voluntary blood donation. However, the prevalence of blood donation among the medical students is still low. This recommends of holding

regular continues medical educations, seminars and motivational activities for medical students to bridge the gap in knowledge, identify and remove misconceptions, and motivate and guide them for regular, voluntary blood donation on a regular basis.

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