

# Perception on blood donation among engineering and medical students in Raichur: A cross-sectional study

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## ABSTRACT

**Background:** Sufficiency in safe blood supply at the time of need can be maintained only through regular, voluntary, and unpaid donation which being the safest group terms of lower rate of blood-borne infections. College students can form one such potential source. Having enough knowledge about their attitudes and practices helps us in motivating them to become regular voluntary donors. **Objectives:** (1) To assess and compare the knowledge on blood donation among the engineering and medical students and (2) to know the perception on blood donation among the students. **Materials and Methods:** A cross-sectional study was conducted among the two groups using a pretested structured questionnaire after obtaining informed consent. Students were randomly administered the questionnaires in engineering and medical colleges. Results were entered and analyzed using Microsoft Excel and openEpi. **Results:** Mean age of the study population was  $20.21 \pm 0.793$  (years) and  $19.9 \pm 0.68$  (years) among engineering and medical students, respectively. 28 (14%) and 130 (65%) students had adequate knowledge on various aspects of voluntary blood donation in engineering and medical college, respectively, this difference was found to be statistically significant ( $\chi^2=1.08 \times 10^2$ ,  $P = 0.00$ ). About 75% of the students in both the groups intended to donate blood in the future if need arises. 40 (20%) and 66 (33%) students in engineering and medical colleges had donated blood till now. **Conclusion:** Medical students are more aware about blood donations than engineering students. Educating college students on various aspects of voluntary blood donation are the needed to meet the demand for safe blood in the country.


**KEY WORDS:** Voluntary blood donation; College students; Knowledge; Attitude and practice

## INTRODUCTION

Blood donation is necessary to maintain an adequate supply of blood to patients who are suffering from any kind of disease or trauma, which requires them to have blood transfusion.<sup>[1]</sup> Most of the times, patients who are in need of transfusion do not have timely access for safe blood, especially in rural and hard to reach areas.<sup>[2]</sup>

According to the WHO, for a country to maintain a basic, self-sufficient supply, it is roughly estimated that a minimum of 1% of the population must give blood regularly. National AIDS Control Programme (NACP IV 2012–2017) had emphasized a blood safety by collecting 90,00,000 blood units through the blood banks and voluntary blood donation in 2016–17, of which only 60% was met.<sup>[3,4]</sup> Family/replacement donors still provide more than 45% of the blood collected in India which is associated with a significantly higher prevalence of transfusion-transmissible infections including HIV, hepatitis B, hepatitis C, syphilis, and malaria.<sup>[4]</sup>

Adequate supply of safe blood can only be assured through regular, voluntary, and unpaid donation. They are the safest group of donations because of lower rate of blood-borne

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infections. 74 countries reported collecting more than 90% of blood supply from voluntary, unpaid blood donors, while in 71 countries <50% of blood supplies come from voluntary, unpaid blood donors with much of their blood supply still dependent on family/replacement and paid blood donors.<sup>[5]</sup>

It is important to identify low-risk donor population in the country for regular voluntary blood donations. Young and physically fit students who form a greater part of the population are generally filled with lots of zeal and enthusiasm.<sup>[6]</sup> Youngsters who are easily approachable in educational institutions can form a herd of healthy voluntary donors who can help to meet this blood demand of our country.<sup>[7,8]</sup> Sadly, earlier studies have reported that students do not donate blood much, and medical students' blood donation rate is less as compared to non-medical students.<sup>[9]</sup> The rate of donation was lesser among the young populations because of misconceptions and apprehensions around blood donation.<sup>[12]</sup>

To motivate the young population in filling this gap of demand and supply of safe blood and blood components, it is important to make ourselves aware about the attitude youngsters have toward blood donation. Learning about the knowledge gaps of the college students helps in bridging those gaps with proper information, thereby increasing voluntary blood donations. In view of this, the present study was undertaken to study the perception and practice blood donation among the college going students in Raichur.

## MATERIALS AND METHODS

A comparative cross-sectional study was conducted among students in two randomly selected engineering and medical college in Raichur during November 2016–January 2017. Ethical clearance was obtained from the institution's ethical committee. Permission to conduct the study was taken from the principals of both the colleges. A total of 200 students in each college were administered the questionnaire based on convenient sampling. A pretested structured questionnaire was used to collect the data after obtaining informed consent. A scoring system was used to assess the overall knowledge level; each correct response was given a score of one and incorrect response a score of zero. There were seven questions to assess the knowledge component and correct response for each question would sum up to a score of 14. Participant with a score of 10 and above was considered to have adequate knowledge and a score of <10 were considered inadequate. Data were entered into Microsoft Excel and analyzed using openEpi and Microsoft Excel. Statistical test used was Chi-square.  $P < 0.05$  was considered to be significant at 95% confidence interval.

## RESULTS

A total of 400 participated in the study, of which 200 were from engineering and 200 from medical colleges. Mean age

of the study population was  $20.21 \pm 0.793$  (years) and  $19.9 \pm 0.68$  (years) among engineering and medical students, respectively. Age of students ranged from 18 to 22 years in both the groups. More than half of the study participants were female students with 44% from engineering and 67% from medical colleges [Table 1].

166 (83%) of the engineering students knew their blood group, whereas all the students in the medical group knew ( $\chi^2=37.15, P=0.00$ ).

28 (14%) and 130 (65%) of the students had adequate knowledge on various aspects of voluntary blood donation in engineering and medical college, respectively, this difference was found to be statistically significant ( $\chi^2=1.08 \times 10^2, P=0.00$ ). Comparative table on knowledge aspect of blood donation is presented in Table 2. Number of female participants (102, 45.9%) having adequate knowledge was found to be more when comparative to male participants (56, 31.5%).

Attitude toward blood donation was assessed based on beliefs associated with blood donation, reasons for not donating and motivating factors for donating blood. Majority in both the groups felt that voluntary blood donation is done only when the blood group is matched (40 [20%] and 46 [23%], respectively). Myths associated with voluntary donation were found to be more among the engineering group [Table 3]. Fear of needle prick and fear of becoming weak and losing weight were stated as reasons for not donating blood among 34 (17%) engineering students, whereas 6 (3%) and 2 (1%) medical students stated that to be the reason [Table 3] "nobody approached me" was the most common reason stated for not donating blood by both the groups (78, 39%, and 26.13%, respectively)

More than 90% of the students in both the groups were willing to donate blood in case of emergencies and in circumstances of saving someone's life [Table 4].

About 75% of the students in both the groups intended to donate blood in the future if need arises. 40 (20%) and 66 (33%)

**Table 1:** Distribution of students according to age and sex

Characteristics	N (%)		
	Engineering	Medical	Total
Age (years)			
18	2 (1.0)	2 (1.0)	4 (1.0)
19	38 (19.0)	52 (26.0)	90 (22.5)
20	78 (39.0)	110 (55.0)	188 (47.0)
21	80 (40.0)	36 (18.0)	116 (29.0)
22	2 (1.0)	0	2 (0.5)
Sex			
Male	112 (56)	66 (33)	178 (44.5)
Female	88 (44)	134 (67)	222 (55.5)
Total	200 (100.0)	200 (100.0)	400 (100.0)

**Table 2:** Comparative table on knowledge

Questions	N (%)		P value
	Engineering	Medical	
What is the lower age limit for blood donation?	134 (69.1)	168 (87.5)	19.24, 0.00
What is the upper age limit for blood donation?	74 (37)	132 (66)	33.67, 0.00
What is the lower weight limit for blood donation?	54 (27)	112 (56)	34.64, 0.00
What is the safe gap between consecutive blood donations?	84 (42)	113 (58)	10.24, 0.00
What is the exact volume of blood collected?	48 (24)	118 (59)	50.45, 0.00
Who is the best source for blood donation ?	180	184	0.5, 0.5

**Table 3:** Perception on blood donation among the students

Questions	N (%)	
	Engineering	Medical
Beliefs on blood donation		
It causes weakness in the body	20 (10)	10 (5)
It is harmful	22 (11)	0
Blood is donated only when blood group is common	40 (20)	46 (23)
I do not need to donate	6 (3)	2 (1)
It accelerates ageing	28 (14)	6 (3)
It causes loss of weight	10 (5)	10 (5)
Reasons for not donating blood		
Blood will not be used properly	40 (20)	8 (4)
Not aware of the process	78 (39)	26 (13)
Scared of needle prick	34 (17)	6 (3)
Had a bad experience during previous donation	10 (5)	3 (1.5)
I fear losing weight and becoming weak	34 (17)	2 (1)
Blood bank is too far from my place	14 (7)	4 (2)
Family members disapprove for donation blood	62 (31)	10 (5)
Blood bank does not provide for free to patients who require	20 (10)	4 (2)
It is painful	6 (3)	4 (2)
Religious beliefs	8 (4)	0
Fear of knowing my status	16 (8)	0
Fear of acquiring HIV infection	16 (8)	4 (2)
Blood donation is not my duty	8 (4)	4 (2)
Nobody approached me	78 (39)	26 (13)

students in engineering and medical colleges had donated blood till now. Overall, 76 (42.7%) male and 30 (13.5%) female students had donated blood. This difference was found to be statistically significant ( $\chi^2=43.19$ ,  $P = 0.00$ ).

## DISCUSSION

The objective of the present study was to know the factors associated with knowledge, attitude, and practice of voluntary blood donation among engineering and medical

students. Overall, in the present knowledge, score was found to be better among medical students than engineering; to move toward cent percent of voluntary blood donations and eliminate the existing replacement donations, we need understand the perceptions and knowledge about the youth regarding blood donations and work toward removing the misconceptions associated with it.<sup>[2,5,10]</sup>

As seen in other studies, myths and misconceptions/beliefs associated with blood donation were found to be more among the engineering students such as, blood donation was being harmful, causing body weakness and accelerated aging when compared to medical students.<sup>5</sup> This necessitates the need for educational and sensitization programs for the college going students to dispel the myths and misconceptions associated with blood donation.

In congruence with other studies, fear of needle prick and doubt that blood donated would not be used effectively was concerns of engineering participants. Not being approached by someone for blood donation was found to be a common reason for not donating by both the groups.<sup>[8,11]</sup> Fear of acquiring infection in the process of donation was a concern stated by the students more among the engineering group, this was reported in other studies too.<sup>[6,8,9]</sup> Emphasis on educating the youth on the procedure and process of blood collection, advantages of donating blood for self, and the country has to be laid to dispel the fears among the youth regarding the blood donations and motivate them to donate more to meet the increasing demand of the county. Inclusion of few basic information on blood donation and functioning of blood banks in the curriculum of schools and colleges can be sought as an option at the policy level. Role of media in sensitizing the youth regarding blood donations should not be ignored.

As found in another study done among college going students, we too found reward in terms of receiving a donor certificate as a motivating factor for blood donation. This reflects on the need for reforming the blood donation drives to include few incentives to motivate the youngsters in encouraging voluntary blood donations.<sup>[5]</sup>

In the present study, proportion voluntary blood donors were more among the medical than engineering students in

**Table 4:** Motivating factors for blood donation

Questions	N (%)	
	Engineering	Medical
It is personal choice	118 (59)	146 (73)
If it improves/save someone's life	186 (93)	192 (96)
It renews my blood	86 (43)	52 (26)
In case of emergencies	182 (91)	190 (95)
If given a reward for donating blood	14 (7)	16 (8)
Only if family and friends need blood	36 (18)	48 (24)
During blood donation campaigns or drives	108 (54)	102 (51)
If the process of blood donation takes less time	18 (9)	18 (9)
I donate to get certificate	104 (52)	142 (71)

contrast to the finding another study where blood donations were found to be more among the non-medical group.<sup>[5]</sup> A conscious effort needs to be made in the county to encourage and mobilize people, especially the college going students to donate blood voluntarily through drives and camps that can be organized close to the community to ensure constant supply of safe blood.

Similar to other studies, we found male blood donors were more in number than female donors despite females being more knowledgeable regarding blood donations. This could be as a result of anemia among them.<sup>[9,12,13]</sup>

Overall, we found very few blood donors among both the colleges. Majority of the students wished to donate at the time of emergency and whenever need arises. This thought of theirs' is a welcome factor to take up educative programs frequently in the college so that more number of students get motivated become regular donors.

### Limitations

The present study focused only on medical and engineering students. Contemporary students in various other streams of education also need to be studied and motivated.

### CONCLUSION

Knowledge and practice of blood donation was found to be better among medical than engineering students. There is a need to educate college going students about the importance of blood donation to bridge the gap between supply and demand.

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