

Knowledge, attitude, and practice of blood donation among college students in Puducherry

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ABSTRACT

Background: Blood donation refers to the process of collection, testing, preparing, storing blood, and blood components. The shortage of blood in India is due to an increase in the demand, with fewer voluntary blood donors. A study on the knowledge, attitude, and the practice of the donors may prove to be useful in the successful implementation of the blood donation program. **Objectives:** The objectives of the study are to assess the knowledge, attitude, and practice of blood donation among college students in Puducherry. **Materials and Methods:** The study is a cross-sectional study. **Results:** All the 136 participants were females studying final year polytechnic. The majority (61%) did not know about the mandatory tests which were done on the donated blood. Only 22% knew that 350 ml of blood can be donated. About 44% respondents opined that creating an opportunity for the donation was an important factor for motivating the blood donation. The majority, 292 (55%), of them felt that the fear of pain was the main reason for not donating blood. Only 28% students mentioned that they had voluntarily donated blood for the first time. 39.7% of participants are willing to become a regular donor in future. Majority (53.6%) of the respondents had a feeling of satisfaction after the blood donation. **Conclusion:** A majority of the donors were willing to be regular donors. Creating an opportunity for blood donation by conducting many blood donation camps may increase the voluntary blood donations. The donors showed positive effects like a sense of satisfaction after the donation.


KEY WORDS: Blood Donation; College Students; Puducherry; Knowledge; Attitude and Practice

INTRODUCTION

Blood donation refers to the process of collection, testing, preparing, storing blood, and blood components.^[1] Blood transfusion is an important concern for the society, as it is lifesaving for patients with bleeding disorders, accidents, surgeries, inherited/acquired hematological diseases, and malignancies.^[2] Donating blood is an active way of helping others and the whole society. Donors are most commonly

unpaid volunteers but they may also be paid by commercial enterprise. Blood donation provides three different components each with its own role in treating patients, and hence, can help three different people and increase life expectancy.^[3] In Africans and Americans people, 47% of blood donors are for “O” positive, 4% for “O” negative, 24% for “A” positive, 2% for “A” negative, 18% for “B” positive, 1% for “B” negative, 4% for “AB” positive, and 0.3% for “AB” negative. Asian people have 39% of blood donors for “O” positive, 1% for “O” negative, 27% for “A” positive, 0.5% for “A” negative, 25% for “B” positive, 0.4% for “B” negative, 7% for “AB” positive, and 1% for “AB” negative blood group.^[3]

The criteria for donation is age between 18 and 60 years, weight should be 45 kg or above 45 kg, hemoglobin minimum of 12.5 g% and should not have donated blood three or

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more months earlier. The donar should be healthy not have suffered from malaria, typhoid or other transmissible disease in the recent past. A normal person can donate approximately 350 ml of blood in one donation, and those who weight more than 60 kg can donate 450 ml of blood.^[4] "O" group blood is called "universal donar" as it can be given to any blood group person. The people of "AB" group can receive blood from any blood group person. Hence, people with this group blood are called "universal recipients."^[5]

The numbers of potential donors were often reduced due to the strict selection criteria which were imposed to ensure the safety of the blood supplies.^[6]

The shortage of blood in India is due to an increase in the demand, with fewer voluntary blood donors. One of its strategies is to take the appropriate decision and/or to introduce policy initiatives on the basis of the factual information, the operational research on various aspects such as transfusion-transmissible diseases, the knowledge, attitude, and practice (KAP) among donors, the clinical use of blood, etc.^[2] A study on the knowledge, attitude, and the practice of the donors may prove to be useful in the successful implementation of the blood donation program. Our aim was to find the level of the KAP of blood donation among college students in Puducherry.

MATERIALS AND METHODS

The study was conducted in the Government Polytechnic College situated in the service areas of Indira Gandhi Medical College and Research Institute (IGMC & RI). The Urban Health Center (UHC) of IGMC & RI is the urban field practice area of IGMC & RI, Puducherry. It was decided to conduct the study among final year college students because it was felt that:

1. Students in 1st and 2nd year would not have attained 18 years.
2. Practice of blood donation was one component included in the study which might be applicable for students above 18 years.

Types of Study

Types of study were a cross-sectional study.

Study Area

The study was conducted in Government Women's Polytechnic College, Lawspet, Puducherry, which is located in urban service area of IGMC & RI UHC, Lawspet. The participants were final year students of various Departments of Government Polytechnic College. The final year students were selected because they would have attained 18 years and would be eligible to answer questions on practice blood donation in the past.

Study Variables

The following was studied among all college students in the study: Age, gender, education, socioeconomic status. Further,

- Knowledge of blood donation,
- Attitude of blood donation,
- Practice of blood donation.

Tools and Techniques

A pretested structured self-administered questionnaire was used to collect the data.

Procedure

The principals of the college selected from the service area were contacted, and the purpose of the study was explained to her in detail. Date and time was fixed for data collection. Total number of students enrolled in final year was 140 out of which 136 were present on the day of data collection. The questionnaire was first tested among five students of another college, not in the service area. After making a few modifications based on the responses obtained, the questionnaire was finalized and used for data collection. Convenient sampling was used to collect the data. There were four departments in the final year. The IIIrd semester MBBS students from IGMC & RI who were posted for community diagnosis posting were used for data collection. The purpose of the study was explained to them, and necessary instructions were given to participants. The pretested questionnaire was given individually to all the students in the study. They were assured that all the information provided by them would be kept confidential. There were 140 eligible students in the final year, and only 136 could be contacted on the day of data collection. By this, the attendance rate was 99%.

Data Analysis

SPSS software version 22 and Microsoft Excel was used for date analysis. For summary statistics proportions, means and standard deviation were calculated.

RESULTS

The total number of respondents was 136. All the participants were females. The age distribution and socioeconomic status of the study population are shown in Table 1. Of the 136 respondents, 94.10% were more than 18 years. According to modified Kuppasamy's socioeconomic scale, 11% belong to lower middle (Class III).

The knowledge on the blood donation among the respondents has been stated in Table 2, which shows that 27 (19.9%) respondents knew that people could donate once in 3 months. The majority (90.4%) of them opined that blood donation

Table 1: Demographic details

Variables	N (%)
Age group (years)	
<18	6 (5.90)
>18	130 (94.10)
Socioeconomic classification	
Upper lower (Class IV)	120 (88.2)
Lower middle (Class III)	15 (11.1)
Upper middle (Class II)	1 (0.7)
Total	136 (100)

could be started at 18 years of age. About, 78.7% stated that HIV patients could not donate blood. One-half (54.4%) knew prerequisite hemoglobin level for the blood donation and 61% did not know about the mandatory tests which were done on the donated blood. Only 30 (22%) knew the correct volume of blood that can be donated. Majority 84 (61.8%) knew the most common blood group. Only 62 (45.6%) knew the rarest group. About 43.3% said that TV/radio to be best source of knowledge on blood donation. Another 32.4% said that school or colleges could be the source of dissemination of blood donation.

The attitude toward the blood donation has been shown in Table 3, which shows that 60 (44%) felt that creating an opportunity for the donation was an important factor for motivating blood donation and 45 (33%) felt that lack of opportunity was the main reason for the hesitation of the donors in donating blood. Another 30 (22%) perceive that fear of getting infected to be the reason for not donating blood. A majority 102 (75%) perceive that TV/radio as the best way to disseminate message regarding blood donation.

The practice of the donors has been shown in Table 4. It was observed that 54 (39.7%) had donated blood for the first time. Two girls had donated blood more than twenty times. Remaining 80 (58.8%) had not donated blood. The majority, 56 (41.2%), were in the age group of 18-25 years. 28% students mentioned that they had voluntarily donated blood for the first time. Another 18 (13.2%) said that the reason for donating the first time was for their friends/relatives. Majority 54 (39%) were willing to become regular donors out of which 75.9% were ready to donate blood once in 6 months. More than half (53.6%) of the participants had a feeling of satisfaction after the blood donation. Another 16% of respondents expressed fear after blood donation.

DISCUSSION

The study was conducted among the final year students of Government Women's Polytechnic College, Lawspet, Puducherry. There were 136 students. About 94.1% were above 18 years. 61.8% of participants were coming underclass V of socioeconomic status. About 58.8% of participants have

Table 2: Knowledge of blood donation

Variables	N (%)
Knowledge of blood donation intervals	
Every 6 months	70 (51.5)
Every 3 months	27 (19.9)
Once in a year	15 (11.0)
Don't know	24 (17.6)
Age of first donation	
18 years	123 (90.40)
Don't know	13 (9.60)
Can HIV positive person donate blood	
No	107 (78.7)
Yes	16 (11.8)
Don't know	13 (9.6)
Hemoglobin level to donate blood	
12.5 g%	74 (54.4)
11.5 g%	27 (19.9)
Don't know	35 (25.7)
Mandatory test done on donated blood	
Know	59 (39)
Don't know	77 (61)
Volume of blood that can be donated (ml)	
250	55 (40.4)
350	30 (22.1)
450	6 (4.4)
Don't know	45 (33.1)
Commonest blood group	
O positive	84 (61.8)
A positive	34 (25.0)
O negative	7 (5.1)
Don't know	11 (8.1)
Rarest blood group	
AB negative	62 (45.6)
O negative	51 (37.5)
AB positive	11 (8.1)
Don't know	12 (8.8)
Source of knowledge about blood donation	
TV/radio	59 (43.3)
Schools/colleges	44 (32.4)
Newspapers/magazines and advertisements	17 (12.5)
Workshops/blood donation camps	8 (5.9)
Heard from people	8 (5.9)
Total	136 (100)

not donated blood. 41.2% of participants donated blood at 18-25 years. About 33.8% of participants belong to O positive blood group. Only 27 (19.7%) respondents knew that blood donation can be done once in 3 months. 90% of them knew that age to start blood donation is 18 years. The majority (78.7%) of participants said that HIV patient should not donate blood. 54% knew the prerequisite hemoglobin

Table 3: Attitude of blood donation

Variables	N (%)
Motivating factors according participants	
Creating opportunity	60 (44.1)
Asking personally to donate	40 (29.4)
Information about need of blood donation	31 (15.4)
Others	15 (11.0)
Reason for not donating blood among participants	
No opportunity	45 (33.1)
Fear of getting infected	30 (22.1)
Getting sick	20 (14.7)
Weakness	17 (12.4)
Lack of awareness	9 (6.6)
Fear of pain	7 (5.1)
Didn't think of it	6 (4.4)
Others	2 (1.5)
Best way to disseminate message	
TV/radio	102 (75.0)
Personal request	17 (12.5)
Printers/banners	12 (8.8)
Others	5 (3.6)
Total	136 (100)

level for the blood donation. The majority (61%) did not know about the mandatory tests which were done on the donated blood. Only 30 (22.1%) knew that 350 ml of blood can be donated. More than half (61.8%) of them responded that the most common group is O positive. Only 45.3% of participants knew that the rare blood group is AB negative. About 44.1% respondents felt that creating an opportunity for the donation was an important factor for motivating the blood donation. The majority, 292 (55%), of them felt that the fear of pain was the main reason for not donating blood. 75% of participants said that TV/radio is the best way to disseminate message of blood donation. Only 28% students mentioned that they had voluntarily donated blood for the first time. 39.7% of participants are willing to become a regular donor in future. The majority (53.6%) of the participants had a feeling of satisfaction after the blood donation.

In our study, the participants were young adults who were in the age group of 18-25 years, with college level education, which was similar to the findings of the studies done by Allain *et al.*^[7] and Hinrichs *et al.*^[8] In contrast, Sampath *et al.* observed that 48.4% of the donors were in the age group of 26-50 years.^[9] In our study, 51.5% said that blood can be donated every 6 months and 19.9% students knew correctly that the blood can be donated every 3 months. This was similar to the study by Nwogoh in Karachi who observed that 27% said that the minimum interval between donations was 6 month and only 21.5% said that it was 3 months.^[10] In contrast, a cross-sectional study done by Uma^[11] among the voluntary donors in Chennai observed that 57.2% donors

Table 4: Practice of blood donation

Variable	N (%)
Number of donations among participants	
Not donated	80 (58.8)
First time	54 (39.7)
>20 times	2 (1.5)
Age of first donation among participants	
Not donated	80 (58.8)
18-25 years	56 (41.2)
Reason for donating blood among participants	
Voluntarily	38 (28)
Friends/relatives	18 (13.2)
Not donated	80 (58.8)
Willing to become regular donor	
Yes	54 (39.7)
No	27 (19.8)
Don't know	55 (40.5)
Time interval for regular donation	
Every 6 months	41 (75.9)
Yearly once	11 (20.4)
Every 3 months	2 (3.7)
Impact of blood donation	
Satisfactory	30 (53.6)
Fear	9 (16.1)
Relaxation/alertness	5 (8.9)
Tired/fatigue	5 (8.9)
Numbness	4 (7.1)
Generally better	2 (3.6)
Mixed feelings	1 (1.8)
Total	56 (100)

knew that people could donate once in 3 months which was similar to the findings of the study done by Olaiya *et al.*^[12] It was observed that 90.4% of students knew the correct age of donating blood was 18 years which was similar to the finding observed by Uma^[11] In this study, 78.7% of students knew that HIV person cannot donate blood, 54.4% of students said that the required hemoglobin level to donate blood was 12.5 g% and 61% of students did not know the mandatory tests done on blood donation. Similarly, the cross-sectional study done by Uma among the voluntary donors in Chennai observed that 99.4% donors stated that HIV patients could not donate blood, 32% donors did not know the prerequisite hemoglobin level for blood donation, and 65% donors did not know about the mandatory tests which were done on donated blood.^[11] It was observed that 22.1% of participants told correctly that 350 ml of blood could be donated on blood donation. The majority (61.8%) said that O positive is the universal donor and 45.6% replied that AB negative as the rarest blood group. Nwogoh conducted the cross-sectional study among voluntary health-care workers in Karachi observed that 92.6% respondents had good knowledge on common blood group types.^[10] Our

study results showed that 50% of college students had good knowledge about the eligibility criteria, as in the study of Lischen and Marjorie.^[13] There was a lack of knowledge among respondents with regard to the mandatory tests which were done after the blood collection, the amount of blood which can be donated. Hence, to create awareness, a clear and simple message must be delivered using health education materials to the target groups. In our study, it was observed that 44.1% accepted that creating opportunity to donate blood is a major motivating factor. Similar finding was found in a Chennai-based study by Uma who showed that 57% donors felt that creating an opportunity for blood donation was an important factor for motivating blood donation^[12] which was similar with the findings of the study done by Olaiya et al.^[12] It was observed that the students mentioned that 33% felt that lack of opportunity was the main reason for the hesitation to donate blood. Another 22% perceive that fear of getting infected to be the reason for not donating blood. Uma^[11] in their study found that the main reason for their hesitation in donating blood was the fear of pain (55%), which were similar to the findings of a study which was done by Olaiya et al.^[12] Nwogoh conducted a cross-sectional study among the health-care workers in Nigeria showed that 71.2% said blood donation may have adverse consequence, 5.5% said that donor may fall sick.^[10] This study conducted among college students shows that 30.1% of students donated voluntarily and 13.2% donated blood for their friends and relatives. Another study conducted by Uma^[11] in Chennai showed that 47.2% donated blood for the first time to their friends/relatives which was similar to the findings of the study done by Sojka and Sojka^[14] Another cross-sectional study conducted in Pravara Institute of Medical Sciences revealed that 90.5% showed positive attitude toward blood donation.^[15] Similar finding was observed in the study by Ahmed et al. among medical students in Karachi.^[16] It was found in our study that 39.7% of students were willing to become regular donors, 41.9% students accepted that blood can be donated for every 6 months, 5.2% of students accepted that blood can be donated for every 4 months. It was observed that 39% were willing to become regular donors out of whom 75.9% were ready to donate blood once in 6 months. A cross-sectional study conducted by Nagatu among medical students in Ethiopia shows that 23.6% has donated blood. From those who donated blood, 14.5% have donated before 1 year.^[17] Devi et al. conducted a cross-sectional study among college students and observed that 13.9% of students have donated blood.^[18] Among them, 75.6% have donated once. Gunsu conducted a cross-sectional study in health science college which shows that 28.5% have donated blood and in non-health science college 38.7% have donated blood.^[19] According to 23.6%, the main reason for not donating blood was fear of pain. About 24.3% of students were satisfied on donating blood, 9.6% were in fear of donating blood. 47.8% of individuals which included the first time donors were willing to become regular donors. 74.4% of individuals were feeling satisfactory after blood donation. With regard to the

impact of the blood donation, 53.6% of the participants had a feeling of satisfaction after the blood donation. Another 16% of respondents expressed fear after blood donation. This was similar to the finding of the study which was done by Uma and Sojka and Sojka.^[11,14] In contrast, a study which was done by Hinrichs et al.^[8] stated that 26.5% donors reported positive effects such as feeling happy and alert, feeling relaxed, 23.5% reported negative effects and 17.6% reported mixed effects. A study done at Abdulaziz Medical city shows that 76.8% strongly agreed that blood donation is a part of altruism, 71.3% agreed that blood donation is a religious duty, 74.2% agreed that blood donation is a national duty, and 81.9% agreed blood donation is a healthy habit.^[20]

In our study, we were able to elicit that majority of the students had inadequate knowledge of blood donation. Most of the respondents in the study group opined that the motivating factors for the recruitment of more donors were creation of opportunities to donate and the need to be well-informed about the need of blood. We recommend that conducting awareness program about blood donation and blood donation camps will create more opportunity for blood donation to meet the blood demand in future. The main limitation of this study was it was questionnaire based study. One to one interview could have elicited an in-depth knowledge regarding the attitude of blood donation.

CONCLUSION

In our study, the majority of the students had inadequate knowledge of blood donation. Most of the respondents in the study group opined that the motivating factors for the recruitment of more donors were creation of opportunities to donate and the need to be well-informed about the need of blood. One-third of the students were willing to be regular donors. The majority of the blood donors showed positive effects like a sense of satisfaction after the donation. Creating opportunities for blood donations by conducting many blood donation camps may provide a solution for our blood demand.

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REFERENCES

1. McKenna CC. Blood minded. *Nurs Times*. 2000;96:27-8.
2. National AIDS Control Organization. National blood policy. Ministry of Health and Family Welfare. New Delhi, India: Government of India, National AIDS Control Organization; 2002.
3. Delaney M, Schellhase KG, Young S, Geiger S, Fink A, Mast AE. Blood center practice and education for blood donors with anemia. *Transfusion*. 2011;51(5):929-36.
4. Kumar A, Sharma S, Ingole N, Gangane N. An audit of blood bank services. *J Educ Health Promot*. 2014;3:11.
5. Sembulingum K, Sembulingum P. *Essentials of Medical Physiology*. 5th ed. New Delhi, India: Jaypee Brothers; 2010. p. 131-2.
6. National AIDS Control Organisation. National guidebook on blood donor motivation. Ministry of Health and Family Welfare. 2nd ed. New Delhi, India: National AIDS Control Organisation, Government of India; 2003.
7. Allain JP, Sarkodie F, Boateng P, Asenso K, Kyeremateng E, Owusu-Ofori S. A pool of repeat blood donors can be generated with little expense to the blood center in sub-Saharan Africa. *Transfusion*. 2008;48(7):735-41.
8. Hinrichs A, Picker SM, Schneider A, Lefering R, Neugebauer EA, Gathof BS. Effect of blood donation on well-being of blood donors. *Transfus Med*. 2008;18(11):40-8.
9. Sampath S, Ramsaran V, Parasram S, Mohammed S, Latchman S. Attitude towards blood donation in Trinidad and Tobago. *Transfus Med*. 2007;17:83-7.
10. Nwogoh B, Aigberadion U, Nwannadi AI. Knowledge, attitude, and practice of voluntary blood donation among healthcare workers at the university of Benin teaching hospital, Benin City, Nigeria. *J Blood Transfus*. 2013;2013:797830.
11. Uma S. The knowledge, attitude and practice towards blood donation among voluntary blood donors in Chennai, India. *J Clin Diagn Res*. 2013;7(7):1043-6.
12. Olaiya MA, Alakija W, Ajala A, Olatunji RO. Knowledge, attitudes, beliefs and motivations towards blood donation among blood donors in Lagos, Nigeria. *Transfus Med*. 2002;42:216-25.
13. Lischen HG, Marjorie K. Study on the Knowledge, Beliefs, Perception, Attitude and Practices on Voluntary Non Remunerator Blood Donation in Namibia. Available from: [http://www.healthnet.org.na/documents/reports/KAP%20STUDY\[1\].pdf](http://www.healthnet.org.na/documents/reports/KAP%20STUDY[1].pdf). [Last accessed on 2017 Feb 15].
14. Sojka BN, Sojka P. The blood donation experience; perceived physical, psychological and social impact of the blood donation on the donor. *Vox Sang*. 2003;84:120-8.
15. Giri PA. Knowledge and attitude about blood donation amongst undergraduate students of Pravara institute of medical sciences deemed university of central India. *Ann Trop Med Public Health*. 2012;5:569-73.
16. Ahmed Z, Zafer M, Khan AA, Anjum MU, Siddique MA. Knowledge and attitude about blood donation amongst undergraduate medical students in Karachi. *Infect Dis Ther*. 2014;2(4):1-4.
17. Nagatu AS. Knowledge attitude and practice of blood donation. *Community Med Health Educ*. 2014;4(5):315.
18. Devi SH, Laishram J, Shantibala K. Knowledge attitude and practice of blood safety and donation. *Indian Med Gaz*. 2012;1(11):1-5.
19. Gunsa A. Knowledge attitude and practice of blood donation. *Indian J Community Med*. 1997;9(74):549-53.
20. Alfouzan N. Knowledge, attitudes, and motivations towards blood donation among King Abdulaziz Medical City population. *Int J Fam Med*. 2014;2014:1-8.

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