ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) OF BLOOD DONATION AMONG MBBS STUDENTS OF A MEDICAL COLLEGE IN KOLLAM, KERALA

Ahmad Nadeem Aslami¹, Abraham Jobby², Sony Simon³, Nahla Nazarudeen⁴, Pranav Raj⁵, Mohammed Ramees⁶, Nikhila Harigopal⁷, Nishani N⁸

HOW TO CITE THIS ARTICLE:
Ahmad Nadeem Aslami, Abraham Jobby, Sony Simon, Nahla Nazarudeen, Pranav Raj, Mohammed Ramees, Nikhila Harigopal, Nishani N. “Assessment of Knowledge, Attitude and Practice (KAP) of Blood Donation among MBBS Students of a Medical College in Kollam, Kerala”. Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 35, April 30; Page: 6086-6095, DOI: 10.14260/jemds/2015/887

ABSTRACT: BACKGROUND: Blood transfusion is a very crucial component to manage patients suffering from various medical conditions. Voluntary blood donors are the need of the hour. There is a need to spread awareness among general population and students about blood donation to maintain a regular blood supply. Young medical students can serve as best example to take a lead in this noble cause. OBJECTIVE: To assess the Knowledge, Attitude and Practice (KAP) of Blood Donation among 1st and 2nd year MBBS students of a Medical College. MATERIAL AND METHODS: The cross sectional study was conducted in a medical college in Kollam district of Kerala in September 2013 among all 1st and 2nd year medical students. A separate Health awareness session was organized. Data was collected and analyzed with the Statistical Package of Social Sciences (SPSS) 12. RESULTS AND OBSERVATIONS: Not a single participant answered all knowledge questions correctly. Only 35% had adequate knowledge. The gender has no significant association with knowledge about blood donation. 90% of the respondents had a positive attitude about blood donation. Religion only plays a minor role in their decision to donate blood. Only 10% actually donated blood. 57% students gave blood to a needy relative. The most common reason for not donating blood was having no opportunity. There is a significant association between 2nd year students and blood donation. After awareness session, the overall willingness to donate blood increased from 89.3% to 97.1%. CONCLUSION: Only one third of students have adequate knowledge level regarding blood donation. Only few among them have donated blood. Majority of them intend to donate blood in future. Information, Education and Communication (IEC) activities should be increased and regular seminars and classes should be conducted to increase awareness among medical students for encouraging them to donate blood voluntarily.

KEYWORDS: Blood Donation, Voluntary, Knowledge, Attitude, Practice, Awareness

INTRODUCTION: Human blood is an essential element of human life and there are no substitutes to blood as yet.¹ Blood transfusion has become a crucial component in the management of patients presenting with accident injuries, surgical conditions, malignancies, pregnancy complications, and other medical conditions.² Promotion of voluntary blood donation is done under safe blood program in India and 1st October is celebrated as National Voluntary Blood Donation Day.³ Voluntary unpaid blood donors who give blood purely for altruistic reasons has been reported with lowest prevalence of HIV, hepatitis viruses and other blood-borne infections whereas higher infection rates are found among family or family replacement donors who give blood only when it is required by a member of the patient's family or community.⁴
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. There is a need for blood services to organize more frequent blood drives to maintain a regular blood supply and to adopt an approach for enhancing new blood donor recruitment and retention of the donors. One of the four components of WHO’s integral strategy to promote global safety and minimize risk associated with blood transfusion is that the blood should be collected only from voluntary donors (Low risk population).

Young medical students are healthy, enthusiastic and know the importance of blood donation. So, if recruited young, they may become future donors and also motivators. Keeping in view the above fact we did a study on undergraduate MBBS Students of our Medical College.

AIMS AND OBJECTIVE:
1. To assess the Knowledge, Attitude and Practice (KAP) of Blood Donation among 1st and 2nd year MBBS students of Travancore Medical College, Kollam, Kerala.
2. To find out the differences in knowledge level and practice of blood donation by selected variables.
3. To impart health education and spread awareness among students about voluntary blood donation.

MATERIAL AND METHODS: This descriptive cross sectional study was conducted in a private medical college (Travancore Medical College) in Kollam district of Kerala, India in September 2013 among all 170, 1st and 2nd year medical students. The respondents were briefed about the aims of the study and they were ensured about the confidentiality by one of the authors. A predesigned and pretested questionnaire was used for data collection. Ethical committee consent was taken from institutional ethical committee. There was a separate Health awareness session for the students and they were given proper knowledge about the importance of blood donation.

The responses were collected and analyzed with the Statistical Package of Social Sciences (SPSS) 12. A scoring mechanism was used to understand overall knowledge level. Based on total score, adequate knowledge was classified as having a percentage of greater to or equal to 60 (≥ 60%). Chi square test was applied to examine the association between the knowledge levels and independent variables like gender and batch of respondents. A p value of <0.05 was taken as statistically significant.

RESULTS AND OBSERVATIONS: Out of 170, 1st and 2nd year MBBS students, a total of 140 responded to the questionnaire giving a response rate of 82.3%. The age range of respondents was 19 to 21 years, with a mean age of 19.8 years. There were 44 (31.4%) males and 96 (68.6%) females. The male to female student ratio was 1:2.2.

All the participants did not have a complete knowledge regarding the various aspects of voluntary blood donation. Not a single participant was able to respond to the knowledge part of the questionnaire with 100% accuracy.

Only 35% (49) of the participants responded to 60% or more of the questions correctly. Most of them were aware of the risk of transmission by blood transfusion. The risk of transmission of HIV, HBV, HCV, malaria and syphilis was altogether affirmed by 90% (126) respondents. The minimum interval between two blood donations is usually 3 months. Only 45% of the respondents answered it correctly.
Only 54% (75) knew the correct volume of blood collected in the process. Similarly, 64% (89) knew that the donation process lasts less than 20 minutes. Details of the Respondents knowledge of blood donation are shown in Table 1.

| Knowledge question                                                                 | Correct Response N (%) |
|------------------------------------------------------------------------------------|------------------------|
| Minimum age to start blood donation                                                | 119 (85%)              |
| Minimum weight for blood donation                                                  | 82 (59%)               |
| Minimum hemoglobin level required to donate blood                                  | 80 (57%)               |
| Minimum interval between two blood donations                                        | 63 (45%)               |
| Amount of blood that can be donated by a person at a time                           | 75 (54%)               |
| Duration to refrain from doing work after the blood donation                        | 47 (34%)               |
| Time required for the blood level to come back to normal                            | 50 (37%)               |
| Kind of food to be taken after blood donation                                       | 127 (91%)              |
| Different types of blood donors                                                    | 89 (64%)               |
| Number of patients benefited from 1 unit of whole blood                            | 89 (64%)               |
| Places of legal blood donation                                                     | 121 (87%)              |
| Universal donor & recipient                                                        | 133 (97%)              |
| Most required blood group                                                          | 52 (37%)               |
| Minimum Duration between blood donation and delivery of baby                       | 55 (39%)               |
| Screening of blood necessary before donation                                        | 140 (100%)             |
| Infections transmitted by blood donation                                            | 126 (90%)              |
| Required blood pressure at the time of blood donation                               | 119 (85%)              |
| Blood donation day                                                                 | 41 (29%)               |
| Duration of a donation process                                                     | 89 (64%)               |
| Maximum duration for which platelets can be stored                                 | 47 (34%)               |

Table 1: Knowledge about Blood Donation

The gender has no significant association with knowledge about blood donation although female respondents answered better (Table 2). There is a significant association between 2nd year students and knowledge of blood donation (Table 3).

| Gender         | Knowledge                  | Total (%) |
|----------------|----------------------------|-----------|
|                | Adequate (%) | Inadequate (%) |           |
| Male (%)       | 13 (9.3)       | 31 (22.1)       | 44 (31.4) |
| Female (%)     | 36 (25.7)      | 60 (4.8)        | 96 (68.6) |
| Total (%)      | 49 (35.0)      | 91 (65.0)       | 140 (100.0)|

\[\chi^2 = 0.838; \ p = 0.360; \ df=1\]

Table 2: The association between gender and knowledge about blood donation

| Batch          | Knowledge                  | Total (%) |
|----------------|----------------------------|-----------|
|                | Adequate (%) | Inadequate (%) |           |
| 1st year (%)   | 22 (15.7)     | 58 (41.4)       | 80 (57.1) |
| 2nd year (%)   | 27 (19.3)     | 33 (23.6)       | 60 (42.9) |
| Total (%)      | 49 (35.0)     | 91 (65.0)       | 140 (100.0)|

\[\chi^2 = 4.62; \ p = 0.032; \ df=1\]

Table 3: The association between Batch and knowledge about blood donation
The attitude towards blood donation has been shown in Table 4.

| Is blood donation a good and noble act? | N (%) |
|----------------------------------------|-------|
| Agree                                  | 140 (100%) |

| What is your attitude towards blood donation? |
|----------------------------------------------|
| Positive                                    | 126 (90.0%) |
| Not Positive                                | 8 (5.7%) |
| Neutral                                     | 6 (4.3%) |

| What do you think is best source of blood donors? |
|-------------------------------------------------|
| Voluntary                                       | 98 (70.0%) |
| Replacement                                     | 10 (7.1%) |
| Paid                                            | 3 (2.1%) |
| I do not Know                                   | 7 (5.0%) |
| No response                                    | 22 (15.8%) |

| Are you willing to donate blood to your relative? |
|-------------------------------------------------|
| Yes                                             | 137 (98%) |

| Are you willing to donate blood to Anyone? |
|-------------------------------------------|
| Yes                                       | 126 (90%) |

| Will you donate blood without knowing the religion of the recipient? |
|---------------------------------------------------------------------|
| Yes                                                                  | 126 (90%) |

| Do you expect any reward for blood donation |
|---------------------------------------------|
| No                                          | 136 (97%) |

Table 4: Attitude towards blood donation

All 140 respondents said that blood donation was good and a noble act. When asked about the attitude towards voluntary blood donation, 90% (126) had a positive attitude. Those who were not having a positive attitude were only 8 (6%) and 6 (4%) were neutral. Out of these 8 who were not having a positive attitude, 6 were citing parental disapproval as a cause for their attitude and 2 were afraid to donate.

Voluntary blood donation was accepted as best source of blood donation by 70% (98) respondents. 98% (137) are willing to donate blood to their relatives but 90% (126) are willing to donate blood to anyone without knowledge of recipient. Religion only plays a minor role in their decision to donate blood as almost 90% are willing to donate even if they do not know the religion of the acceptor. 97% (136) do not expect any reward for blood donation.

The practice of the donors has been shown in Table 5. It shows that out of 140 students, actually only 14(10%) donated blood. Out of these 14, 10(71%) donated only once while others donated twice (29%) but nobody donated more than twice.
Table 5: Practice of Blood Donation

| Have you donated blood before | n (%) |
|-------------------------------|-------|
| Yes                           | 14 (10%) |
| No                            | 126 (90%) |

| How many times you have donated blood |       |
|--------------------------------------|-------|
| Once                                 | 10 (71.4%) |
| Twice                                | 4 (28.6%) |
| Thrice                               | 0 (0%) |

| Why did you donate blood |       |
|--------------------------|-------|
| A relative needed blood  | 8 (57.1%) |
| A known person other than relative needed blood | 2 (14.3%) |
| Voluntary                | 4 (28.6%) |

| Are you satisfied after donating blood |       |
|---------------------------------------|-------|
| Yes                                   | 14 (100%) |

| Are you willing to donate blood in future |       |
|------------------------------------------|-------|
| Yes                                      | 125 (89.3%) |
| No                                       | 15 (10.7%) |

| Have you received blood |       |
|-------------------------|-------|
| Yes                     | 4 (3%) |

Figure 1 shows the reason for their donation. 8 (57%) students gave blood to a needy relative while 2 (14%) donated to a known person other than relative. Only 4 (29%) students donated it voluntarily. These 4 are 2nd year students who donated blood voluntarily in our hospital blood bank. All 14 (100%) were very much satisfied after blood donation. The most common reason for their satisfaction was that their endeavor has helped in saving someone’s life.
Figure 2 shows that among 126 (90%) non-donors, the most common reason for not donating blood was having no opportunity (25%). The other reasons were lack of awareness (23%), parental pressure (21%), fear (17%) and religion (15%). 19 (15%) students had no specific reason for not donating blood. Only 4 (3%) respondents have received blood and all have received it from a relative.

Table 6: The association between gender and blood donation

| Gender       | Donor (%) | Non-donor (%) | Total (%) |
|--------------|-----------|---------------|-----------|
| Male (%)     | 6 (4.3%)  | 38 (27.1%)    | 44 (31.4%)|
| Female (%)   | 8 (5.7%)  | 88 (62.8%)    | 96 (68.6%)|
| Total (%)    | 14 (10%)  | 126 (90%)     | 140 (100.0)|

χ² = 0.943; p = 0.332; df=1

Table 7: The association between Batch and blood donation

| Batch    | Donor (%) | Non-donor (%) | Total (%) |
|----------|-----------|---------------|-----------|
| 1st Year (%) | 4 (2.9%) | 76 (54.3%)    | 80 (57.1%)|
| 2nd Year (%) | 10 (7.1%) | 50 (35.7%)    | 60 (42.9%)|
| Total (%) | 14 (10%)  | 126 (90%)     | 140 (100.0)|

χ² = 5.19; p = 0.023; df=1

NB: More than one option was allowed.

Out of 14 students who donated blood, 6 (43%) were males and 8 (57%) were females. This difference between male and female blood donors have no significant association (p=0.332) as shown in Table 6. There is a significant association between 2nd year student and blood donation (p=0.023) as shown in Table 7.
After awareness session, only 4 students (2 males and 2 females) were unwilling to donate blood and they stated parental reasons and religious beliefs for their unwillingness. The overall willingness to donate blood increased from 89.3% to 97.1% after awareness session.

**DISCUSSION:** Blood was, is and will be always in demand. All over the world there are several medical conditions which require prompt blood transfusion. In India, before National AIDS Control Programme (NACP) 1 was launched in 1992, the blood donation was mostly a family affair or a business. The family members used to donate blood to each other or unknown donors used to earn money by donating blood. When voluntary blood donation was propounded everywhere in the globe, it became famous in India also. But still there is a wide gap between the supply and demand. So, this study was done to assess the knowledge, attitude and practice of medical undergraduates about voluntary blood donation.

In our study, 35% of the participants had adequate knowledge about some important aspects of blood donation i.e. responded to 60% or more of the questions correctly. Bharatwaj el al reported that 37.5% has adequate knowledge about blood donation.7

85% of the students in the present study knew correct age limit for donating blood. Shahshahani et al. in their study reported that 45% in the general population had correct knowledge regarding minimum age requirement for blood donation.8

In our study we found that 64% of the students were aware about number of patients that can be benefited from 1 unit of whole blood. Devi HS et al. also showed that 63.9% undergraduate students were aware of this fact.9

Present study showed that less than half of the students (45%) knew about the minimum interval between two donations. Benedict Nwogon et al. found that 21.5% of health care workers (non-physicians) had correct knowledge regarding interval of donation in a study carried out at the University of Teaching Hospital, Benin city.10

Overall all 2nd year students showed significantly higher knowledge as compared to 1st years. Kowsalya V et al. in their study also showed that 2nd year students had better knowledge about blood donation.11

In contrast to a study done among college students of Dhaka University, where there were a high number of respondents with negative attitude towards blood donation, in our study we found that the attitude towards blood donation was positive for 90% of respondents.12

Parental disapproval and fear was the main cause for not having a positive attitude. 98% were willing to donate blood to their relatives. These findings were corroborated by the results of a previous study by Jaurez O et al.13

90% are willing to donate blood to anyone without knowledge of recipient. Religion only plays a minor role in their decision to donate blood. This was seen in a study by Umakanth S et al.14

Out of 140 students, actually only 14 (10%) donated blood. Different studies have shown a range of 10-20% of blood donation among students.11,15

Among donors, 71% donated blood only once. It is very similar to the findings by Oaiya et al.16 57% of the respondents donated blood to a needy relative, which was similar to the findings of the study done by Sojka et al.17

Among 126 (90%) non-donors, the most common reason for not donating blood was having no opportunity (25%). Other studies also showed similar cause.18,19 The other reasons were lack of
awareness (23%), parental pressure (21%), fear (17%) and religion (15%). 19 (15%) students had no specific reason for not donating blood. Only 4 (3%) respondents have received blood and all have received it from a relative.

The gender has no significant association with the practice of blood donation. This is not in accordance to a study done by WHO stating that 96% of the donors in India are males.20 There is a significant association between 2nd year student and blood donation.

CONCLUSION: Only one third of students have adequate knowledge level regarding blood donation. Female students and 2nd year students knew more about blood donation than male and 1st year students respectively. Only few among them have donated blood. Majority of them intend to donate blood in future. Information, Education and Communication (IEC) activities should be increased and regular seminars should be conducted to increase awareness among medical students for encouraging them to donate blood voluntarily. The red ribbon club should be made in all colleges and active participation should be there by faculty, staff members and everyone in the vicinity of the college/Hospital apart from medical students. There should be regular blood donation camps to make sure that safe blood is available for all patients in need.

LIMITATION OF THE STUDY: Major limitations of our study were those inherent to most studies on knowledge, attitudes and practices. Firstly, the responses were influenced by socially desirable attributes and there is the possibility of both recall bias and interviewer bias. Secondly, since Kollam is a multicultural city with a broad diversity and the students were from only one medical college and hence, it will not be appropriate to extrapolate completely the result which we have obtained, to the students of all medical college or general population. Thirdly, data on those who did not agree to participate in the study were not collected and analyzed to exclude the possibility of a sampling bias.

ACKNOWLEDGEMENT: We would like to express our appreciations to all 1st and 2nd year students who participated in the study and some of our friends (Neethu M Thomas Krishnendu MS, Manisha V Somraj, Maya VS, Megha SR, Mohd Noufal, Najina J, Nishan U, Praseetha S., Rakesh K, Ritas AS, Rima P, Riswana SA) who helped us in data entry and analysis.

REFERENCES:
1. Action Plan for blood safety. National AIDS Control Organization, Ministry of Health and Family Welfare, Government of India, New Delhi. 2007.
2. World Health Organization, “Blood safety and availability,” WHO Fact Sheet no. 279, World Health Organization, 2014.
3. kishore J. National Health Programs of India. 9th ed. Delhi: Century publications; 2011.
4. Universal access to safe blood transfusion. WHO. Switzerland: 2011.
5. National Guidebook on Blood donor motivation. Ministry of Health and Family Welfare, National AIDS Control Organisation, Government of India. Second edition 2003.
6. WHO. The clinical use of blood Handbook, Geneva, 1, 2001.
7. Bharatwaj RS, Vijaya K, Rajaram P. A Descriptive Study of Knowledge, Attitude and Practice with regard to Voluntary Blood Donation among Medical Undergraduate Students in Pondicherry, India Journal of Clinical and Diagnostic Research 2012; 6: 602-604.
8. Shahshahani HJ, Yavari MT, Attar M, Ahmadiyeh MH. Knowledge, attitude and practice study about blood donation in the urban population of Yard, Iran. Transfusion Medicine 2006; 16: 403-09.
9. Devi HS, Laishram J, Shantibala K, Elangbam V. Knowledge, Attitude and Practice (KAP) of Blood Safety and Donation. Indian Medical Gazette 2012; 1: 1-5.
10. Benedict N, Usimenahon A, Alexander NI, Isi A. Knowledge, Attitude and Practice of Voluntary Blood Donation among Physicians in a Tertiary Health Facility of a Developing Country. International Journal of Blood Transfusion and Immunohematology 2012; 2: 4-10.
11. Kowsalya V, Vijayakumar R, Chidambaram R, Srikumar R, Reddy EP, Latha S. et al.. A study on knowledge, attitude and practice regarding voluntary blood donation among medical students in Puducherry, India. Pak J Biol Sci. 2013; 16: 439-42.
12. Hosain GM, Anisuzzaman M, Begum A. The knowledge and attitude towards voluntary blood donation among Dhaka University students in Bangladesh. East Afr Med J. 1997; 74: 549–53.
13. Juárez-Ocaña S, Pizaña-Venegas JL, Farfán-Canto JM, Espinosa-Acevedo FJ, Fajardo-Gutiérrez A. Factors that influenced the non-donation of blood in the relatives of patients at a pediatric hospital. Gac Med Mex. 2001; 137: 315-22.
14. Umakanth Siromani, Tsuneo Tsubaki1, Dolly Daniel, Joy John Mammen, Sukesh Chandra Nair. A perspective study on the attitude to and practice of voluntary blood donation in a tertiary referral hospital in South India. African Journal of Medical and Health Sciences 2014; 13: 85-9.
15. Shanga N, Pal R, Sengupta S. Behaviour disparities towards blood donation in Sikkim, India. Asian J Transfus Sci. 2008; 2: 56-60.
16. Olayia MA, Alakija W, Ajala A, Olutunji R. Knowledge, attitudes, beliefs and Motivations towards blood donation among blood donors in Lagos, Nigeria. Transfusion Medicine. 2002; 42: 216-25.
17. Sojka BN, Sojka P. The Blood Donation Experience; Perceived Physical, psychological and social impact of the blood donation on the donor. Vox Sanguinis 2003; 84: 120-28.
18. Joshua Daniel M, Prakash H, Muddegowda, Dhivya K, Ashwin Kumar S, Arun R et al. Opinions about Blood Donation amongst Medical Personnel’s. Journal of Clinical and Diagnostic Research 2014; 8: 43-5.
19. Gilani I, Kayani ZA, Atique M. Knowledge, attitude and practices (kap) regarding blood donation prevalent in medical and paramedical personnel. J Coll Physicians Surg Pak. 2007; 17: 473-6.
20. “WHO report on Gender distribution of blood donors by country,” Data Reported by WHO Global Database on Blood Safety, 2011.
AUTHORS:
1. Ahmad Nadeem Aslami
2. Abraham Jobby
3. Sony Simon
4. Nahla Nazarudeen
5. Pranav Raj
6. Mohammed Ramees
7. Nikhila Harigopal
8. Nishani N.

PARTICULARS OF CONTRIBUTORS:
1. Assistant Professor, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.
2. Vice Principal, Travancore Medical College, Kollam, Kerala, India.
3. Lecturer in Statistics, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.
4. 3rd Year MBBS Student, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.
5. 3rd Year MBBS Student, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.
6. 3rd Year MBBS Student, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.
7. 3rd Year MBBS Student, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.
8. 3rd Year MBBS Student, Department of Community Medicine, Travancore Medical College, Kollam, Kerala, India.

FINANCIAL OR OTHER COMPETING INTERESTS: None