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A Study on Knowledge, Attitude and Practice Regarding Voluntary Blood Donation among Medical Students in Puducherry, India

¹V. Kowsalya, ¹R. Vijayakumar, ²R. Chidambaram, ²R. Srikumar, ³E. Prabhakar Reddy,
¹S. Latha, ¹I. Gayathri Fathima and ¹C. Kishor Kumar

¹Department of Physiology, Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry-605 502, India

²Centre for Research, Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry-605 502, India

³Department of Biochemistry, Sri Lakshmi Narayana Institute of Medical Sciences,
Puducherry-605 502, India

Abstract: Knowledge, attitude and practice studies have been used to understand the various factors that influence blood donation which is the basis for donor mobilization and retention strategies. Role of youngsters in voluntary blood donation is crucial to meet the demand of safe blood. The present study was aimed to assess the level of knowledge, attitude and practice regarding voluntary blood donation among the health care students. A validated and pre-tested questionnaire on knowledge, attitude and practice on blood donation were assessed among 371 medical students from Sri Lakshmi Narayana Institute of Medical Sciences and Research Institute, Puducherry, India. Result showed that knowledge on blood donation among respondents was 44.8% (1st year 36.7%, 2nd year 42.8% and 3rd year 54.9%). About 62.6% of non-donors (1st year 51%, 2nd year 61% and 3rd year 77%) showed positive attitude by expressing their willingness to donate blood while 22.8% of the non-donors had negative attitude (1st year 33%, 2nd year 23% and 3rd year 13%). In practice 13.2% of students had donated blood (1st year 10%, 2nd year 13% and 3rd year 24%), in which 2.7% of male students alone donating blood on regular basis. Over all 3rd year student showed significantly higher knowledge compared with 1st years, in attitude and practice section 3rd year student's showed significantly higher positive attitude and practice than that of 1st and 2nd years. The present study reveals that there is a positive association among knowledge, attitude and practice on blood donation, which suggest that positive attitude and practice can be improved by inculcating knowledge on blood donation among college students to recruit and donate blood regularly, which will help to achieve 100% of blood donation on voluntary basis.

Key words: Knowledge, attitude, practice, voluntary blood donation

INTRODUCTION

The theme of the 2012 world blood donor day campaign is "Every blood donor is a hero" focuses on the idea that every one of us can become a hero by donating blood. The transfusion of blood and blood products helps to save millions of lives. The requirement of blood and blood products in a country depends on the population, health care structure, prevalence of conditions requiring regular transfusions such as haemophilia and thalassaemia, availability of surgical centers using modern sophisticated techniques and awareness amongst clinicians regarding judicious use of blood. In addition increase in life expectancy, urban development and associated increase in accidents, specialized surgeries demands the usage of blood supply.

Every year about 234 million major operations are performed worldwide, of which 63 million people undergoing surgery for traumatic injuries, 31 million for treating cancers and another 10 million for pregnancy-related complications (Di Lorenzo *et al.*, 2011). Every two seconds someone needs blood and in India during 2010-2011, 10 million units of safe blood required for transfusion services, out of which only 8.01 million units were collected (NACO, 2011). The gift of blood is the gift of life, there is no substitute for human blood. Though the term artificial blood is a misnomer as blood has various functions, the so called artificial blood can only carry oxygen to the cells and bring back carbon dioxide in a limited way but cannot perform any other functions of blood. Further, this so called substitute is quite costly for developing countries like India (Brig *et al.*, 2003).

Corresponding Author: R. Srikumar, Centre for Research, Sri Lakshmi Narayana Institute of Medical Sciences, Osudu, Agaram Village, Villianur Commune, Kudapakkam Post, Puducherry- 605 502, India
Tel: +91-413-266 1998 Fax: +91-413-266 1996

As per World Health Organization (WHO) norms, minimum 1% of the population is needed to meet the basic requirement of blood for the countries. In India, during the year 2006-2007, Voluntary Blood Donation (VBD) was only 54.4% and increased to 79.4% during the year 2010-2011.

The WHO's goal is to obtain blood supplies entirely from voluntary unpaid donors by 2020. In India transfusion services depends on three main categories of blood donors which include voluntary non-remunerated blood donors who donate blood without any remuneration, family donors who donate blood for their friends and relatives and paid donors who donate blood on remuneration. Major source of safe blood is voluntary non-remunerated blood donors because paid donors may have high risk behaviour leading to greater chances of transfusion transmitted infections and also the family donors are under pressure may hide their high risk behavior and illnesses (Olaiya *et al.*, 2004). However, recruitment of voluntary, non-remunerated blood donors poses major challenges to transfusion services throughout the world (Misje *et al.*, 2009). Only few percentage of population came forward to donate blood on a regular basis. Hence there is a need to establish strategies to increase the recruitment and retention of voluntary non-remunerated blood donors to donate blood on regular basis.

According to WHO, 38% of reported VBD are under the age of 25 years and WHO insist the countries to focus on young people to achieve 100% non-remunerated voluntary blood donation. Role of health care institutions and its students are pivotal in VBD. Therefore understanding the various factors contributing to knowledge, attitude and practice of VBD among college students are important. So, the present study was aimed to assess the level of knowledge, attitude and practice regarding VBD among the medical students.

MATERIALS AND METHODS

The study was conducted among 371 medical students (includes 140 I year students, 125 II year students and 106 III year students) who voluntarily participated from Sri Lakshmi Narayana Institute of Medical Sciences and Research, Puducherry, India. A briefing was given about the objective of the study and confidentiality was assured in collection of personal data. A validated and pre-tested questionnaire on knowledge, attitude and practice on blood donation covering the nature of donation, requirements for donation; test carried in the blood banks, storage, blood components, usage of blood and health benefits for blood donors were assessed

among students. For knowledge a scoring mechanism was used, each correct answer was given one score, positive and negative attitudes were assessed only for the non-donors and in practice, reason for not a regular donor was assessed.

Statistical analysis: Data were expressed in percentage and statistical analysis was carried out using one-way analysis of variance, using Statistical Package for Social Sciences. When there was a significant difference, Tukey's multiple comparisons were performed by fixing the significance level at $p < 0.05$.

RESULTS and DISCUSSION

The overall knowledge on blood donation among respondents was 44.8%, in which 32% of the respondent knows about the collected blood volume in every blood donation, 87.5% of respondent aware about the suitable age, 32.4% of the respondent knows minimum weight, 84% of respondent knows required BP, 45.5% of students aware about the frequency of blood donation, 32.4% of the respondent knows blood-borne infections for which the donated blood is tested, 16.2% of respondent aware about the number of days blood stored and 73.3% of respondent knows the health benefits of blood donors. Overall 3rd year students showed significantly higher knowledge (54.96%) compared with first (36.71%) year students (Table 1). This study suggests that to improve knowledge, details about blood donation should be incorporated in the initial stage of higher education and periodic awareness program should be there for recruitment and retention of donors. In addition the advantages of blood donation to the donors, like frequent and long-term blood donation is associated with a lower risk of cardiovascular events, helps in fighting hemochromatosis should be highlighted for better motivation.

Only 28% of the respondent aware about the blood components preparation and 17% of respondent aware about the maximum number of lives saved from each unit of donated blood. This results strongly recommends that frequent awareness should be given to the voluntary donors in particular to health care professionals on blood components i.e., separation of unit blood into 4 components and save up to 4 lives (Stacy and Gurevitz, 2011). By this not only reduces the demand on blood units but also improves curative effect and diminishes negative post donation reaction in the recipient (Reeves and Murphy, 2008).

In attitude section, about 322 (86.79%) of the participants never donated blood of which 22.8% of the

Table 1: Knowledge on blood donation among medical students

Knowledge (No. of students = 371)	Percentage			
	1st year	2nd year	3rd year	Average
Blood volume that donated in every blood donation	17.9	21.6	56.6	32.0
Suitable age for blood donation	80.7	90.4	91.5	87.5
Minimum weight for blood donation	35.0	37.6	24.5	32.4
Normal blood pressure to donate blood	67.9	88.0	96.2	84.0
No. of times a healthy male and female can donate blood in a year	30.0	42.4	64.1	45.5
Blood-borne infections for which the donated blood is tested	27.1	29.6	40.5	32.4
No. of days donated blood stored at 2-4°C	15.7	16.8	16.0	16.2
Health benefits for blood donors	60.0	71.2	88.6	73.3
Separation of blood components from the donated blood	11.4	16.0	56.6	28.0
Number of lives saved from the each unit of donated blood	21.4	14.4	15.0	16.9
Overall % of knowledge	36.71	42.8	54.96*	44.8

Values are expressed as mean percentage, *compared with 1st year students, the *symbols represent statistical significant $p < 0.05$

Table 2: Attitude on blood donation among medical students

Attitude (No. of students = 322)	Percentage			
	1st year	2nd year	3rd year	Average
Positive attitude				
No one ever asked me	35.8	39.3	51.2	42.1
Don't know where to donate blood	Nil	7.1	6.4	4.5
No chance to donate blood	Nil	2.1	Nil	0.7
I am afraid	13.5	11.4	19.2	14.7
Parents did not allow me to donate	1.2	0.71	Nil	0.6
Overall % of positive attitude	51	61	77* [@]	62.6
Negative attitude				
Not interested	0.94	1	1.43	1.1
I may medically unfit	25.4	9.6	6.4	13.8
Blood donation make me anemic	6.6	8.8	4.3	6.6
Possibly getting infection	Nil	3.2	0.7	1.3
Overall % of negative attitude	33	23	13*	22.8

Values are expressed as mean percentage, *compared with 1st year students, [@]compared with 2 year students. The *,[@]symbols represent statistical significant $p < 0.05$

non-donors had negative attitude like medically unfit to donate blood (13.8%), donation leads to anaemia (6.6%), possibly getting infection (1.3%) and 1.1% of respondent are not interested (Table 2). Among the negative attitude 22.8% of the non-donors said medically unfit, since few may be temporarily deferred (low hemoglobin, colds and/or sore throats, elevated temperature) during pervious counseling for donation might be the reason for this negative attitude (Halperin *et al.*, 1998). The present study strongly suggests that deferrals should be counselled that most of these deferrals are only on temporary basis and can become a healthy donor in the subsequent blood donations.

About 62.6% of non-donors showed positive attitude by expressing their willingness to donate blood if they were approached (42.1%), of which 14.7% of the non-donors were afraid to donate blood, 4.5% of non-donors don't know where to donate blood, 0.7% of non-donors had no chance to donate blood and 0.6% of non-donors are not permitted by their parents to donate blood.

The non-donors with positive attitude should be motivated and provided with awareness programs to

Table 3: Practice on blood donation among male and female students

Year	No. of participant	No. of student donated blood			No. of regular donor		
		Male	Female	Total	Male	Female	Total
1 st	140	14	-	14	3	-	3
2 nd	125	7	3	10	1	-	1
3 rd	106	19	6	25	6	-	6
Total	371	40	9	49	10	-	10

Table 4: Practice on blood donation among medical students

Practice (No. of students = 371)	Percentage			
	1st year	2nd year	3rd year	Average
I donated blood	10.0	8	23.5* [@]	13.2
I am a regular donor to donate blood	2.1	1.2	5.6	3.0
Reason for not a regular donor				
Wait for a long time	1.4	1.2	1.8	1.5
Nobody approached me	5.0	5	7.5	5.8
Discomfort after donation	1.4	Nil	1.8	1.1

Values are expressed as mean percentage, *compared with 1st year students, [@]compared with 2 year students, The *,[@]symbols represent statistical significant $p < 0.05$

promote blood donation on voluntary basis, while non-donors with negative attitude are need to be educated about the importance and health benefits upon blood donation.

Though positive attitude was similarly observed between male and female students (data not shown), but performance in blood donation by the female students were few (Table 3) and that too not on regular basis this may be due to the higher rate of deferrals, because of low haemoglobin content and higher rate of adverse reactions like dizziness and fainting after blood donation (Sundar *et al.*, 2010). Barriers to donate blood by the female students should be studied, evaluated and steps must be taken to motivate them to donate blood regularly on voluntary basis.

In the present study 13.2% of medical students were donated blood, in that too only male students (3%) are regular donors (Table 4) and remaining 5.8% of blood donors mentioned that they have not asked again to donate blood, 1.1% of the donors had experienced some discomfort after donation and 1.5% mentioned that they

were asked to wait for a long time to donate blood. Hence this study emphasis the systematic donor retention program like motivation of donors on regular basis, giving personal attention, minimizing the time of waiting, easily accessible location and convenient time schedule to donate blood are needed to retain the recruited donors to donate blood on regular basis. This will also increase the safety of blood which is free from transfusion transmitted infection.

The present noted a positive association observed with knowledge, attitude and practice on blood donation, which suggest that practice can be enhanced by improving knowledge and positive attitude on blood donation among college students.

CONCLUSION

In conclusion, good knowledge may lead to higher desire for blood donation. Present study will create awareness on VBD among the entire student's community who should be the lead forward from the front to donate blood voluntary and should take all necessary steps to create awareness program on voluntary blood donation. Such studies need to carry out across the Nation to march towards 100% blood donation on voluntary basis.

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