Original Article

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Pathology Section

Voluntary Blood Donation among Students - A Cross-Sectional Study on Knowledge and Practice vs. Attitude

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ABSTRACT

Introduction: The factors influencing blood donation decisions are varied and complex and one's attitude can influence this decision.

Aim: To find the factors affecting the knowledge and practice of blood donation among college students and their attitude towards the same.

Materials and Methods: This cross-sectional study was conducted among 399 college going students using convenience sampling from medical, nursing and engineering colleges in Bhubaneswar city, where blood donation camps were to be held. Data was collected through self-administered questionnaires and, analysed in SPSS Version 20.0.

Results: Knowledge regarding blood donation was adequate among 228 (57.1%) of the students and, 221 (55.4%) students had donated blood. Knowledge was significantly better among female students, medical stream and in those whose parents were in non-medical jobs; whereas blood donation had been done significantly more by male, non-medical stream students and by those whose parents were in medical field. Most common reason for donating blood was a sense of social responsibility and most common reason of non-donation was fear of the procedure. An 85% of the students were of the view that they would donate blood if asked. Students suggested that small incentives like certificates and arranging transport for blood donation would make it easier to donate.

Conclusion: Just over half of the students had adequate knowledge about blood donation and similar percentage had donated blood. There is this large pool of safe blood in college going students who are willing, but not tapped as source of blood donation.

Keywords: Donation behaviour, Medical students, Non-medical

INTRODUCTION

The factors impacting blood donation decision are varied and complex. The prediction of blood donation behaviour can be determined by intention to donate, which in turn is affected by positive or negative attitude, subjective factors like social pressure and perceived ease or difficulty in performing the blood donation [1,2]. In voluntary blood donation programmes across the globe, altruism remains the centre piece of voluntary blood donation programmes and has been associated most often as reason for giving blood in many developed countries [3,4].

According to the World Health Organization (WHO), 1% of the population is generally the minimum needed to meet the country's most basic requirements for blood; hence the estimated blood requirement of South East Asia is about 18million units per year, and the annual collection is about 9.4million units, leaving a gap of 6million units [5-7]. In India, the proportion of blood units collected through voluntary blood donation at National AIDS Control Organisation (NACO) supported blood banks was 84.3% in 2012 [8]. There is a need to fill this gap of demand and supply from various sources.

One of the potential sources that can be tapped for blood donation is the young and physically fit students from educational institutions across India. They can meet the blood demands of our country and provide safe and quality blood and blood components collected from healthy voluntary donors. In order to be able to tap this valuable source of safe blood, it is pertinent to have information regarding their attitude towards blood donation and whether they have adequate knowledge to make the decision to donate blood and what factors are associated with their knowledge as well as donation behaviour.

Hence, this study was conducted to assess the knowledge, attitude and practices of voluntary blood donation among college going students of various streams and to determine the factors associated with knowledge about blood donation and donation behaviour.

MATERIALS AND METHODS

This cross-sectional study was conducted among students of five colleges, namely; medical, nursing, engineering, arts and commerce in Bhubaneswar city, India, where voluntary donation camps were to be held. A pre-designed, self-administered questionnaire in English was used to collect data as the medium of instruction was English in all the colleges where the study was conducted. The questionnaire contained sections on donor socio-demographic factors; knowledge of the blood donation process & blood transfusion, practice of donation and attitude of donors. A few questions on intervention strategies were added to assess if such interventional strategies would help in recruiting more voluntary donors. A scoring system was used to understand overall knowledge level; a score of one was given for each correct response and zero for incorrect response. Participants with all correct answers get a maximum of 28 points. Considering the basic knowledge that the students must possess to be an informed donor, a minimum score of 13 points was considered as indicative of adequate knowledge. It took about 20 minutes to fill the questionnaire.

Sample size was calculated by considering that 38% of students had donated blood in a previous study within India [9], at 95% confidence level and 15% allowable error, the minimum sample size was estimated to be 290. With non-response rate of 20%, we needed at least 350 students and eventually 399 were included in the study.

After obtaining approval from the Institutional Ethics Committee of All India Institute of Medical Sciences, Bhubaneswar, the college authorities where the voluntary donation drives were to take place were approached for their permission to conduct the study. On

the day of the drive, the questionnaires were distributed among the students before the motivational lecture which preceded the blood donation camp. They were explained about the objectives of the study and asked to fill the questionnaire if they consented to participate in the study and if they were unwilling to participate, return the unfilled questionnaire. They were assured of the anonymity and confidentiality of their data. Statistical analysis was done in SPSS version 20.0. The results are presented in percentages and logistic regression was used to find strength of association. The p<0.05 was considered significant.

RESULTS

A total of 399 college students from different streams participated in the study. Mean age of the study population was 20 (SD=2.4) years, with the ages ranging from 17years to 30years. Two thirds of them were males and almost the same proportions were from urban background [Table/Fig-1].

Of the total, 228 (57.1%) students had adequate knowledge and 171(42.9%) had less than adequate knowledge on various aspects of blood donation. Univariate regression analysis showed that the adequacy of knowledge varied significantly according to gender (OR=5.08 {3.06-8.42}), study course (OR=8.36 {5.23-13.37}) and parents' job (OR=3.42 {1.1-10.7}); whereas there was no difference in adequacy of knowledge according to rural and urban resident status of the students or with type of family [Table/Fig-2]. These factors were also having independent effect on knowledge [Table/Fig-3]. As regards the donation practice, 221 (55.4%) of the students had donated blood at least once. Voluntary blood donation was significantly more common among non-medical students (OR=20.13 {11.96-33.86}), males (OR=5.31 {3.34-8.43}), ones with parents in medical jobs (OR=4.67 {2.78-7.85}) and belonging to joint family (OR=2.85 {1.82-4.45}) in univariate analysis [Table/Fig-4]. However, on multivariate analysis, type of family showed no bearing on donation behaviour of the students but rest of the factors were independently associated with blood donation behaviour of students. Knowledge was inversely related to donation with students with inadequate knowledge having donated three times more often than ones with adequate knowledge [Table/Fig-5]. There was no difference in knowledge or donor behaviour of students from rural or urban background.

Attitude towards blood donation was categorised into reasons for donation, fears associated with donation, reasons for not donating

Socio-demographic variable		No (%)
Age (years)		
	<20	206 (51.6)
	≥20	190 (47.6)
Gender*		
	Male	265 (66.4)
	Female	128 (32.1)
Residence*		
	Urban	229 (57.4)
	Rural	152 (38.9)
Type of family*		
	Nuclear	233 (58.4)
	Joint	142 (35.6)
Course stream		
	Medical	185 (46.4)
	Nonmedical	214 (53.6)
Parents job*		
	Medico	273 (68.4)
	Nonmedico	111 (27.8)

[Table/Fig-1]: Socio-demographic profile of the study population.
*missing data therefore total is not 100 percent

	Knowledge		Unadjusted Odds ratio (95% CI)	p-value
	Adequate n (%)	Inadequate n (%)		
Course				
Non-medical	76 (35.5)	138 (64.5)	1	
Medical	152 (82.2)	33 (17.8)	8.36 (5.23-13.37)	<0.0001
Gender				
Male	122 (46)	143 (54)	1	
Female	104 (81.3)	24 (18.7)	5.08 (3.06-8.42)	<0.0001
Residence				
Urban	129 (56.3)	100 (43.7)	1	
Rural	90 (59.2)	62 (40.8)	1.12 (0.74-1.7)	0.578
Parents' profession				
Medical	41 (36.9)	70 (63.1)	1	
Non-medical	177 (64.8)	96 (35.2)	3.42 (1.1-10.7)	0.035
Family type				
Joint	79 (55.6)	63 (44.4)	1	
Nuclear	143 (61.4)	90 (38.6)	1.27 (0.83-1.94)	0.273

[Table/Fig-2]: Univariate analysis of factors associated with adequacy of students' knowledge.

Factors	Odds ratio (95% CI)	p-value
Course		
Non-medical	1	
Medical	5.73 (3.42-9.6)	<0.0001
Gender		
Male	1	
Female	2.49 (1.31-4.76)	0.001
Parents' profession		
Medical	1	
Non-medical	4.64 (1.4-15.4)	0.012
Family type		
Joint	1	
Nuclear	1.96 (1.1-3.5)	0.022

[Table/Fig-3]: Multivariate analysis of factors having independent effect on knowledge of students.

	Donated n (%)	Not donated n (%)	Unadjusted Odds ratio (95% CI)	p-value
Course				
Non-medical	43 (23.4)	141 (76.6)	1	
Medical	178 (86)	29 (14)	20.13 (11.96-33.86)	<0.0001
Gender				
Female	38 (29.9)	89 (70.1)	1	
Male	179 (69.4)	79 (30.6)	5.31 (3.34-8.43)	<0.0001
Residence				
Rural	76 (51.4)	72 (48.6)	1	
Urban	130 (57.5)	96 (42.5)	1.28 (0.85-1.95)	0.241
Parents' profession				
Non-medical	119 (44.7)	147 (55.3)	1	
Medical	87 (79.1)	23 (20.9)	4.67 (2.78-7.85)	<0.0001
Family type				
Joint	103 (44.8)	127 (55.2)	1	
Nuclear	97 (69.8)	42 (30.2)	2.85 (1.82-4.45)	<0.0001
Knowledge				
Adequate	84 (37.7)	139 (62.3)	1	
Inadequate	137 (81.5)	31 (18.5)	7.31 (4.55-11.76)	<0.0001

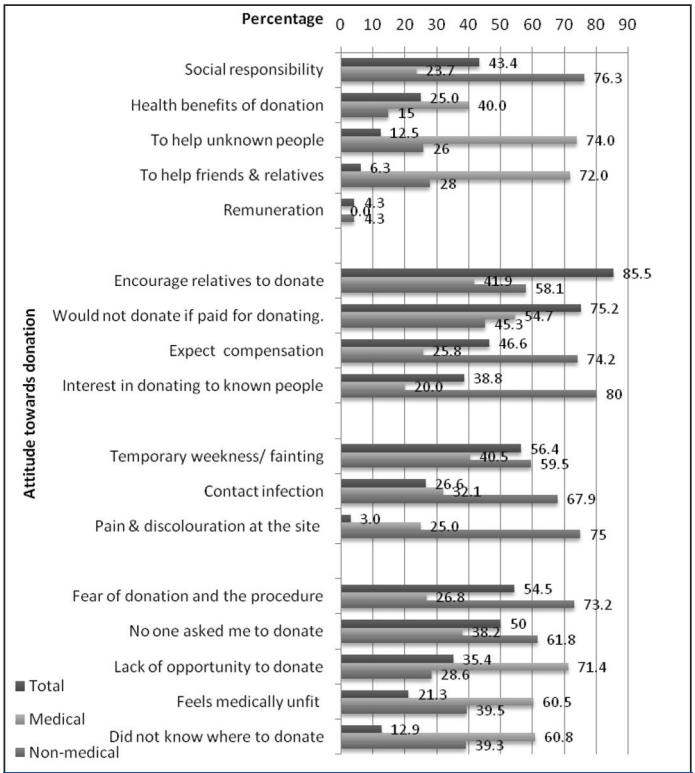
[Table/Fig-4]: Univariate analysis of factors affecting donation behaviour.

	Odds ratio (95% CI)	p-value
Course		
Non-medical	1	
Medical	6.18 (3.24-11.8)	<0.001
Gender		
Female	1	
Male	2.76 (1.46-5.23)	0.002
Residence		
Rural	1	
Urban	1.15 (0.63-2.1)	0.647
Parents' profession		
Non-medical	1	
Medical	2.51 (1.24-5.1)	0.011
Family type		
Joint	1	
Nuclear	1.69 (0.89-3.19)	0.105
Knowledge		
Adequate	1	
Inadequate	2.99 (1.6-5.58)	0.001

[Table/Fig-5]: Multivariate analysis of factors affecting donation behaviour.

and if they would encourage others to donate. The most common reason for donation was a sense of social responsibility as reported by 173 (43.4%) students and among them 75% was from non-medical stream. A large majority (85.5%) of students said that they would encourage others to donate blood. The most common fear associated with the procedure during and after donation was temporary weakness and fainting, as felt by 225 (56.4%) students of which students from medical related fields were 131 (58.2%) and non-medical were 94(41.8%) followed by fear to contact infection as stated by 106(26.6%) students of which 34 (32.0%) were from medical field and 72 (67.9%) were from non-medical field [Table/Fig-6].

Of the ones who had not donated, most common reason for not donating blood was Fear of donation and the procedure' as stated by 97 students of which, 26 (26.8%) medical and 71(73.2%) non-medical 'No one asked me to donate' was the



[Table/Fig-6]: Attitude of students towards blood donation.

second most common reason with 89 students stating it, of which 34 (38.2%) were medical and 55(61.8%) were non-medical. Third most common reason for non-donation was lack of opportunity to donate as felt by 35.4% of the students. Two students said that the reason for not donating blood was 'Fear of knowing the disease status' and both were from non-medical field. Fifteen students said that tight lecture schedule was a deterrent [Table/Fig-6].

There were 234 students who had gone to donate and were deferred, and the most common reason was anaemia. Of these 154 (38.59%) were males and 80 (20.05%) were females, while 177 (44.36%) were from medical stream and 61 (15.28%) from non-medical stream. A total of 286 students (71.67%) agreed that they either took or would like to take permission from parents before donation. Approximately half of the student population (46.61%) said that the expenses towards blood donation need to be compensated. However, majority of the students (75.18%) did not want to be paid for donating blood. A total of 326 students (81.70%) felt that voluntary blood donation was the best source of blood and only 3 (0.75%) students felt that paid donation was equally good. 320 students (80.20%) agreed to donate in emergency and when reminded to do so [Table/Fig-6].

The participants felt that voluntary blood donation would be encouraged if the donors were given blood donor certificates (25.6%) followed by small incentives like small pin or badges (11.5%), 282 (70.2%) students also said that they would donate organs or bone marrow. The students who had friends or relatives as voluntary blood donors were 311 (77.9%). The percentage of students who consented to become a voluntary blood donor was 299 (74.9%) and for 197 (49.4%) participants, the preferred interval was every six months. More than 75% of the students considered satisfaction as the prime impact of blood donation. The major reason cited for not being a regular blood donor was the inability to fit the opportunity to give blood into one's schedule. Majority of the participants 90.5% (361) felt that interventional strategies like organizing transport to the donation venue would be helpful inbecoming a regular voluntary donor.

DISCUSSION

The study was conducted with the objectives to determine the factors associated with knowledge and practice of blood donation, assess attitude towards voluntary blood donation among college going students of various streams and, to identify and recruit potential voluntary blood donors amongst them. Knowledge about blood donation in the present study was almost similar to those found in other studies, with around half of the students having adequate knowledge [10-15]. Knowledge was obviously better among students in medical field as compared to non-medical field and also among female students compared to males. Similar observation was made by another study in South India [9]. Those students whose parents were from non-medical field, irrespective of their own field of study also had better knowledge. Children of non-medical parents may take extra efforts to learn about blood donation due to their felt deficiency in knowledge but children whose parents are in medical may have some information, which may lead to false sense of knowledge and therefore they would not seek active information by themselves. These differences are in contrast to the findings of other studies where they found no socio-demographic association with knowledge [15,16].

An encouraging finding in the present study was that more than half of the students had donated blood at least once, which is much higher than found in any other study whose donor percentage was mostly around 11%-13% [12-16]. However, most of these studies were from other nations. Only one other study showed a larger donor percentage and that was a study conducted in South India, with 38% [9]. This could mean that India's effort to mobilize students for safe blood donation may be working. India has banned

paid donation and only voluntary donation is accepted. It has been making efforts to encourage people, especially college students to go for voluntary donation with blood donation drives and camps, such as the one, which was used for the present study. However, 57% donors found is not very high and one needs to make more effort to tap full potential of this group, if the country is to meet its unmet demand for safe blood.

Blood was donated significantly more by male students in the present study and this is in congruence with other studies [12,14,17,18]. Though knowledge was better among female students, blood was donated more by male students. This has been a common phenomenon where males have been preferred for blood donation and indicates that may be, we have a larger pool of female donors, which is untapped. However, in a country like India where anaemia among women is very common, this may be a deterring factor, similar finding were observed by a study in South India [19]. This is further corroborated by the fact that 234 (indicating that even among those who had donated, there were instances when they were deferred as donors) students who had gone to donate blood in the present study were deferred from donating, and the most common reason was anaemia. This indicates that we need to focus on improving health status of women in our society before we could tap them as source of safe blood.

Donation was also more common among non-medical students as compared to medical students. Better knowledge among medical students had not translated into more blood donation. There is a disparity in the knowledge, attitude and practice towards blood donation in medical students. It was ironical to see that the medical students' primary reason for non-donation was 'nobody asked me to donate' and 'lack of opportunity' whereas for the non-medical it was 'fear of donation and the procedure'. The reason that nobody asked me to donate was also found in a study in Chennai, South India [19]. This reflects the need of educational and sensitization programmes so that the students are encouraged to approach the blood bank for blood donation. There is also pressing need for involvement of media in promoting the events of voluntary blood donation as well as in dispelling the myths associated with donation. Similar observation was made by a study in Pondicherry, India where only one out of 104 medical students had donated blood and they also cited lack of opportunity to be one of the primary reasons for non-donation [15]. This could mean that hospital authorities and blood banks need to be aware of the potential donors among medical students and bring them under the donor pool. Students belonging to nuclear families had better knowledge and more of them donated blood than though latter was not statistically significant. A study in north India showed that individuals from nuclear family were significantly more likely to donate [18]. It would seem that knowledge adequacy would lead to more blood donation; however, in the present study knowledge was inversely related. This may be due to the fact that majority of donors were non-medical students and obviously their knowledge was lagging behind medical students and hence, not truly reflective of knowledge–donation relationship. Nevertheless, it does indicate that knowledge by itself is not a key ingredient for donating blood.

The policies aimed to promote voluntary donation should incorporate blood donation motivated by altruism whereby individuals donate to benefit others and also to gain emotional satisfaction with 'social responsibility' and the blood donor is driven by a desire to contribute to society, along with a sense of personal satisfaction from donating. The role of media especially the electronic media in propagating the message of altruism and emotional satisfaction gained by saving lives should be enhanced. Posters and interviews of people whose lives were saved by donation can further contribute to encourage people to donate.

Students seemed to have a positive attitude about blood donation as majority (85%) of them said that they would donate blood if needed and would also encourage relatives and friends to donate. Majority also said that they would not donate if it they were being paid for the same. This is further substantiated by the fact that most cited reason to donate was a sense of social responsibility and helping others. This is an encouraging trend in India that students tend to donate due to altruism [19] and do not have to be compelled. Unlike in one study done in Nigeria, where not only had fewer students (11%) donated blood, but even those who had donated had done under compulsion [11]. This may be reflective of cultural differences and/or impact of awareness programmes success in India. It is important for sustained voluntary donation that donors be motivated positively than be coerced into donating. What the students feared most regarding blood donation in the present study was temporary weakness and fainting after the procedure. This along with fear of contacting infections has been reported by other studies too [9,14,15,17]. This needs to be addressed by the respective agencies by providing correct information and allaying unnecessary fears so that they feel safe to donate blood.

The reasons for non-donation given by the students in the present study is similar to those found in other studies where lack of opportunity including not being asked, fear of being weak afterwards, fear of procedure and feeling unfit to donate were major causes [11-16]. This suggests that planned awareness and motivational programs in campuses among students, allaying their unfound fears are required to bring positive changes in voluntary blood donation. A proper sensitization and massive donor recruitment should be a part of national blood policy and media campaigns to recruit and retain all potential donors. There is room for improvement in terms of adequate information and facility for blood donation as many subjects found enough opportunities to be lacking even though desire was there.

Globally, it has been found that 80% of first time donors every year give up the practice of blood donation [20]. Retention of voluntary blood donors will require additional measures. This study also attempted to glean from the students themselves the incentives that could be used to attract more donors and according to them, one of the most important factors was arranging transport for them. Besides this, small incentives like certificate, badge or pin were also mentioned. However, just a minuscule percent said cash would be an attraction. The various incentives for voluntary blood donation have been evaluated in different parts of the world. Donors attracted by cash were 60 percent more likely to have a risk for transfusion-transmissible infections. The probability of being an at-risk donor were higher among individuals attracted by tickets to events [21]. However, the study by Sanchez et al., also suggested that offering blood credits and (though to a lesser extent) items of limited value could be safe and effective strategies for retaining donors [22]. This concurs with our report about ways to attract donors. Medical students are an excellent source of safe voluntary blood donors to meet the blood demands in emergency situation [23]. Therefore, strategies like organising transport to donation venue and blood donor cards /certificates should be considered as safe and effective ways to attract and retain donors. The involvement of electronic media in displaying information of voluntary blood donation drives, locating the nearest blood donation centre, displaying live blood stock when the inventory is low especially in summers to encourage blood donation are few strategies to promote voluntary blood donation. The voluntary blood donation promotional campaigns should focus on unselfish act of donating blood to save lives and simple clear messages to educate and dissipate myths associated with donation should be propagated.

LIMITATION

Major limitations of our study were those inherent to most studies on knowledge, attitudes and practices. The data is reliant on students' correct reporting of their knowledge and attitude. Since they were already a target group for a donation drive in their institute, they could be more knowledgeable than in other institutes.

CONCLUSION

Knowledge about blood donation was adequate in over half of the students and almost similar percentage of students had donated blood. Knowledge was better among female students, ones who belonged to non-medical parents and nuclear families but blood was donated more by male students and of wards of medical parents. Most students donated as a sense of social responsibility and most common reasons of not donating were fear of the procedure and lack of opportunity. Majority said they would donate if needed. These findings suggest that students of all streams have positive attitude towards blood donation; however, steps need to be taken to allay their fears, create more opportunities for donation and recognise and tap this source of safe blood.

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