International Journal of Clinical and Diagnostic Pathology

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College going student's knowledge regarding voluntary, non-remunerated blood donation

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Abstract
Background Blood services are facing shortage of blood all over the world. Demand for blood is rising day by day and current blood donation is insufficient to meet the demand.
Objectives: To assess college going student's knowledge regarding voluntary, non-remunerated blood donation. Study design: cross-sectional study. Participants: five hundred students above the age of 18 years who qualify for blood donation & Five hundred students of similar age group who were not participating in blood donation were also recruited after taking their consent. Sampling: Only those participants who gave consent to participate in the study were enrolled.
Statistical Analysis: Study period: from March to September 2013.
Results: Assessment of the level of knowledge among blood donor participant revealed that 36 (7.2%) participant had excellent knowledge, 222(44.4%) had good knowledge, 152 (30.4%) had average knowledge, 90 (18%) had poor knowledge. No participants among blood donor students had very poor level of knowledge. Among non-blood donor participants 93 (18.6%) had good level of knowledge, 108 (21.6%) had average level of knowledge, 166 (33.2%) had poor level of knowledge, 133 (26.6%) had very poor level of knowledge.
Conclusion: Data analysis revealed that there was significant difference in the knowledge level among the donors and non-blood donor participants.

Keywords: Knowledge, knowledge score, voluntary blood donation, college student

Introduction

Knowledge, attitude and behaviour surveys were done between 1995 and 2011 in seventeen countries classified as emerging and developing by the International Monetary Fund. [1] The subject of these studies was blood donation. These surveys have been used in many countries to understand factors that influence blood donation and form the basis for communication and donor mobilization strategies. These surveys were performed in seventeen countries namely Bangladesh, Brazil, Burkina Faso, Chile, China, Haiti, Iran, Moldova, Nigeria, Pakistan, Saudi Arabia, South Africa, Tanzania, Thailand, Trinidad and Tobago, Togo and Uganda. Despite considerable differences in culture and demographics of these countries many common themes emerged from different surveys:

- Misinformation about blood donation
- Fear of blood donation
- Willingness to donate for family and friends
- Concern about selling blood
- Failure to transfer positive attitude into actual blood donation

India is also a developing country and same general misconceptions may be prevalent in Indian population. Carrying out survey in Indian population may provide insight to developing appropriate strategies in rooting out these misconceptions. Governments of both India and Pakistan identified Knowledge and Attitude survey on blood donation as a part of their strategic plan for both blood safety and HIV prevention. [2, 3]
Voluntary Blood Donation Program-An Operational Guideline, National AIDS control organization (NACO), Ministry of Health and Family Welfare (MOHFW), Government of India (GOI) states that blood collection target for National AIDS Control Programme (NACP-III) is 100 lakh units while the existing annual blood collection in India is 72.7 lakh. [4, 5] Therefore as per this operational guideline of NACO, MOHFW, GOI there is a shortfall

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in annual blood collection of 27.3 lakh units from the set target. Therefore, it is need of hour to not only recruit new blood donors but also to retain existing blood donors in order to provide uninterrupted supply of blood for the needy patients. This study was planned to assess the knowledge of college going students regarding the blood donation, and also to address the misconceptions that they may be having. This study was conducted to assess college going student's knowledge regarding voluntary, non-remunerated blood donation.

Materials & Methods
The cross-sectional study was conducted by the Department of Transfusion Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh, India, from March to September 2013 at the colleges where VBD camps are conducted after obtaining approval from the ethics committee of the Postgraduate Institute of Medical and Research, Chandigarh Study population comprised of five hundred students above the age of 18 years who qualify for blood donation after assessment of suitability to donate blood as per the blood donor questionnaire and consent form of the department and were willing to enrol for the above said study after providing written informed consent as per the study questionnaire. Five hundred students of similar age group who were not participating in blood donation were also recruited after taking their consent as in study questionnaire. Pre-validated, self-administered questionnaire

Sample size
Sample size for the study was 1000 (N= 1000).
500 blood donors.
500 non-blood donors.

Sampling technique (subject selection)
Only those participants who gave consent to participate in the study were enrolled.

Methodology
The questionnaire was offered to the students of college willing for blood donation. They were recruited for blood donation after screening by a medical officer from the department as per the blood donor questionnaire and consent form. The questionnaire was also got filled from students who were not blood donors. The questionnaire was distributed in a separately demarcated area at the blood donation venue and was collected personally from the participants. Care was taken that participants answered questions individually and not after discussion amongst themselves. The participants were helped to interpret any question that they did not understand.

Statistical Analysis
The statistical analysis was carried out using Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, version 15.0 for Windows). Scores were presented as mean $\pm$ SD, median and Inter quartile Range. Qualitative or categorical variables (e.g. age gender) were described as frequencies and proportions. Comparison for donors and non-donors were done by Chi-Sq. or Fisher's exact test, whichever was applicable.

Results When
data relating to age of donors and non-donors was analysed it was found that, minimum age of both donors and non-donors was 18 years and maximum age of participating donors was 24 years and that of non-donors was 26 years with p value of 0.278.
The mean age for blood donors was 19.80 ± 1.31 (years) and for non-donors was 19.69 ± 1.69 (years) with overall mean of 19.75 ± 1.51. Range for age in blood donors was 18-24 (years) and in non-donors was 18-26 (years) with overall range from 18-26 (years). Table 1

Table 1: Age distribution among participants

Participants (N = 500)	Age (Years) Mean ± SD	Range (years)	P Value
Donors	19.80 ± 1.31	18-24	
Non-Donors	19.69 ± 1.69	18-26	0.278
Total	19.75 ± 1.51	18-26	

Data depicts that 75.80% of donors were males and 24.20% were females in blood donor students, whereas among non-blood donor participants there was 55.0% of male gender and 45.0% of female gender. In the present study more, number of blood donors was of male gender as compared to female and this difference was statistically significant in both donor and non-donor study population. Table 2

Table 2: Gender distribution among participant

Group	Donor (N=500)	% within group	Non- Donor (N=500)	% within group	P value
Male	379	75.80%	275	55.00%	<.001
Female	121	24.20%	225	45.00%	

Among blood donor students no participant had very poor level of knowledge, 18% participants had poor knowledge, 30% participants had average level of knowledge, and about 45% participants had good level of knowledge, whereas about 7.0% participants had excellent knowledge. Among non-blood donor students about 60.0% participant had either very poor or poor level of knowledge, and about 40.0% participant had average or good level of knowledge. Among non-blood donor students, no participant had excellent knowledge. Table 3

Table 3: Percentage distribution of blood donors and non-donor according to their level of knowledge about blood donation

Level of knowledge	Knowledge Score	Number of Donor & Non-Donor in relation to level & score of knowledge	
		Donor (N=500)	Non-Donor (N=500)
Very Poor (< 40%)	0-9	0 (0%)	133 (26.60%)
Poor (< 50%)	10-12	90 (18%)	166 (33.20%)
Average (< 60%)	13-14	152 (30.40%)	108 (21.60%)
Good (< 75%)	15-18	222 (44.40%)	93 (18.60%)
Excellent (> 75%)	19-22	36 (7.20%)	0 (0%)

Among blood donor students about 82% (410) students had knowledge level of more than fifty percent regarding blood donation process whereas 18% (90) students had knowledge level of less than fifty percent whereas among non-blood donor participants 40% (201) students had knowledge level of more than fifty percent whereas 60.0% (299) students had knowledge level of less than fifty percent. The difference in knowledge between blood donor and non-blood donor is statistically significant with odds ratio of 6.78 with p value < 0.001. Table 4

Table 4: Percentage distribution of blood donors and non-donor according to their level of knowledge about blood donation

Level of knowledge	Knowledge Score	Participant´s number in each level Of knowledge	
		Donors (N=500)	Non-Donors (N=500)
MORE THAN 50%	13-25	410 (82.0%)	201 (40.20%)
LESS THAN 50%	0-12	90 (18.0%)	299 (59.80%)

Mean knowledge among blood donor participants was 14.71 and among non-blood donor participants was 11.55 and overall mean of 13.13. Range of marks obtained by the participants among blood donor students was 10 to 22 (minimum score was 10 and maximum score was 22), and among non-blood donors' participant was 3 to 16 (minimum score was 3 and maximum score was 16). The difference in knowledge level among the participants in blood donors and non-blood donors was statistically significant with a p value of < 0.001. Table 5

Table 5: Comparative Mean, Median, S D and range of score & P Value

Knowledge Score				
Participants	MEAN± SD	Median	Range	P Value
DONORS (N=500)	14.71 ± 2.48	15.00	10-22	
NON-DONORS (N=500)	11.55 ± 2.82	11.00	3-16	<0.001
Total (N= 1000)	13.13 ± 3.09	13.00	3-22	

Discussion
The present study was conducted on 1000 college going students whereas study from Lucknow [6] sampled 1200 person (400 each voluntary blood donor, replacement donor and non-blood donor), twelve hundred and eighty adults in a rural area were sampled in China. [7]

On analyzing the demographic data, it was observed that the mean age for blood donor participants was 19.80 ± 1.31(years) and for non-donor was 19.69 ± 1.69 (years), the overall mean for both the group combined together was 19.75 ± 1.51(years). Range for age among blood donor participants was 18-24 (years) and in non-blood donor participants was 18-26 (year) and the overall range for both blood donor and non-blood donor participants was 18-26 (years).

When data in relation to gender distribution of blood donor participants was analysed it was found that 379 (75.8%) of blood donor participants was male and 121 (24.2%) was female and among non-blood donor participants 275 (55.0%) was male and 225 (45.0%) was female. It was observed in the study that more number of blood donors was of male gender as compared to female and this difference was statistically significant (P value < 0.001). The overall percentage of female was 35% in the present study which was comparable with the finding in the study conducted at Lucknow by Dubey et al (26.4%) [6].

On analysing the knowledge level among the blood donor and non-blood donor participants it was assessed that blood donor participants had more knowledge than non-blood donor participants. The marks obtained by the blood donor participants in each question were more as compared to non-blood donor participants. Difference in marks obtained among blood donors and non-donor participants were statistically significant for at least 80% of the question. The average knowledge score among blood donor participants was more than that of non-blood donor participants. The mean value of knowledge among blood donor participants was 14.71 ± 2.48 with range of marks 10 to 22 and among non-blood donor participants was 11.55 ± 2.82 with marks ranging from 3 to 16. Among blood donor students 410 (82%) students scored more than fifty percent marks and 90 (18%) students scored less than fifty percent marks whereas among non-blood donor participants 201 (40.2%) participants scored more than fifty percent and 299 (59.80%) non-blood donor students scored less than fifty percent. This finding of the present study is consistent with the observation of Shenga, et al [8] in their study. It was observed in the present study that knowledge regarding, blood group systems in human beings, when World blood donor day and National voluntary blood donation day celebrated in India, which blood group are universal blood donor and universal blood recipient, status of sterility of the needle used in blood donation, screening test done on collected blood, disease that might spread by the transfusion of unscreened blood and blood products, and various component prepared from donated single unit of whole

blood, was good in both blood donor students and non-blood donor students, but blood donor participants had more knowledge than non-blood donor students.

However for the questions such as; legal age for blood donation in India, minimum time between two donations, minimum time between two platelet donations, number of days collected blood can be stored in blood bank, importance of haemoglobin estimation, minimum weight of

a person for blood donation, whether blood transfusion between first degree relative is safe or not, there was low level of knowledge among both the blood donors and non-blood donors participants, however even in these questions blood donor participants scored more than non-blood donor participants.

Thus, the findings of present study are comparable with the various other studies as depicted in table 6.

Table 6: Comparison of knowledge level

Country	Knowledge of uses of donated blood	Knowledge of typing of donated blood	Knowledge of testing of donated blood	Knowledge of age requirement	Knowledge of interval requirement
Present study χ	62%	96.0%	82.7%	40.2%	67.%
Bangladesh [9, 16]	*	91%	66%	17·5%	44·5%
Brazil [10]	*	*	45·7%	*	*
Chile [11]	89·3%	*	*	23·3%	23·3%
China [7]	*	*	84·4% (HBV) 77·8% (HIV)	50·1%	38%
Haiti [12]	*	*	*	*	*
Iran, 2006[13]	85·3%	95·5%	95·5%	44·8%	74·1%
Iran, 2007[14]	79·5%	*	*	3·7%	*
Moldova [15]	'Quite High'	95%	*	'Quite Low'	24%
Saudi Arabia [26]	*	*	*	5·8%	54·4%

(*) cells indicate that data were not available, χ =Average of donor and non-donor score

Conclusion
It was concluded that Blood donor students had more knowledge regarding blood donation as compared to non-blood donor students. Knowledge among blood donor participant revealed that 36 (7.2%) participant had excellent knowledge, 222 (44.4%) had good knowledge, 152 (30.4%) had average knowledge, 90 (18%) had poor knowledge. No participants among blood donor students had very poor level of knowledge. Among non-blood donor participants 93 (18.6%) had good level of knowledge, 108 (21.6%) had average level of knowledge, 166 (33.2%) had poor level of knowledge, 133 (26.6%) had very poor level of knowledge.

Acknowledgment
I would like to express my profound gratitude to all the participants.

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