

Original Research Article

Gender based knowledge, attitude and practice study about blood donation among medical students in a sub-Himalayan state

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ABSTRACT

Background: WHO is advocating a policy towards 100% voluntary non-remunerated blood donation by year 2020. The youth in general and medical students in particular constitute the core group for recruitment and retention of voluntary donor population in order to ensure safe and sustainable blood transfusion practices in India. The objective of the present study is to elucidate the knowledge, attitude and practices about voluntary blood donation among medical undergraduate students.

Methods: A pretested, close ended questionnaire was administered to second and third year MBBS students of a tertiary care teaching hospital in Northwest India. Results were expressed in proportions and chi-square test was used as a test of significance ($p < 0.05$).

Results: More than 90% of the respondents knew the suitable age for blood donation and interval between two blood donations. Knowledge parameters like age for blood donation, minimum weight for blood donation and volume of blood collected for blood donation were found to be statistically significant ($p < 0.5$) between boys and girls. More females than males had positive attitude for voluntary blood donation which was statistically significant ($p < 0.05$). In the practice part, voluntary blood donation rate was 26.69%.

Conclusions: Every opportunity should be availed to sensitise medical students about voluntary blood donation after their entry into medical colleges. It can greatly enhance the movement for voluntary non-remunerated blood donation and ensure safe and adequate quality of blood.

Keywords: Attitude, Knowledge, Practice, Voluntary blood donation

INTRODUCTION

Blood transfusion is a core service within health care systems and the individuals who donate their blood provide a unique contribution to the health as well as survival of fellow human beings. Blood transfusion saves lives of many patients both in routine as well as emergency situations.¹ As per World Health Organization (WHO), for any country to meet the minimum demand for blood, collection should be at least 1% from the total

population.² Approximately half of the global blood donations occur in the high-income countries, and less than 45% of donated blood is collected in developing and transitional countries, which are home to about 80% of the world's population.

It is aptly reflected in blood donation rate which is 33.1 donations per 1000 people in high income countries, 11.7 donations in middle-income countries and 4.6 donations in low-income countries.³

The three main types of blood donors are voluntary non-remunerated; family or replacement and remunerated or paid. Voluntary blood donation (VBD) remains the backbone of blood safety and safe transfusion practices and can guarantee the regular supply of safe blood and hence it is imperative to improve the recruitment as well as retention of voluntary blood donors.^{3,4}

Voluntary blood donors are considered as the safest because the prevalence of transfusion transmitted infections and sero-positivity is lowest among these donors in comparison to replacement blood donors.^{5,6} Also voluntary non-remunerated blood donors possess adequate knowledge regarding donor deferral and are able to self-exclude themselves whenever they feel that they are unfit to donate blood. They easily respond to calls for emergency requirement of blood and its components especially in case of rare blood groups. There is ample evidence of medical benefits of regular VBD. It reduces the incidence of acute myocardial infarction and reduces the insulin resistance, thus improving the glucose balance in the body.^{7,8}

Motivation for blood donation is affected by certain factors such as altruism, social pressure, behavior as well as replacement needs.^{9,10}

There should be greater consciousness and increased level of positive attitude about voluntary blood donation. According to World Health Organization (WHO), 38% of the voluntary blood donors are below the age of 25 years, also young people should be the special target group because they form a great part of the population and are generally full of zeal and enthusiasm and WHO has emphasised on nations to focus on these young people to arrive at 100% non-remunerated voluntary blood donations levels. Even when they are too young to donate, they can be educated to become voluntary donors when they reach the legal accepted age group.¹ Role of health care institutions and involvement of healthy and enthusiastic young medical students are pivotal to attain the above said targets.

So, understanding the various factors contributing to knowledge, attitude and practice of voluntary blood donation among medical undergraduate is of paramount importance. It was in this context that the present study was conducted to assess the levels of knowledge, attitude and practice regarding VBD among medical undergraduate students in a Government Medical College in North India.

METHODS

After getting the necessary approval from Institutional Ethical committee, this descriptive cross sectional study was carried out in the month of January 2017 among second and third year MBBS students of Government Medical College, Jammu, Jammu and Kashmir, India. The normal strength of each class is 150 students but out

of 300 possible students, only 256 students were present when the questionnaire was actually administered. A briefing was given about the objective of the study and anonymity of the collected data was ensured. The questionnaire was prepared by public health experts in consultation with faculty of Blood Transfusion department, Government Medical College Jammu, Jammu and Kashmir, India. The pretested, self-administered questionnaire comprised of four major parts. In part one, socio-demographic characteristics of the respondents were elicited while part two, three and four dealt with knowledge, attitude and practices regarding voluntary blood donation respectively.

The responses thus collected were entered into excel sheets, tabulated in proportions and analysed using chi square test to determine the statistical significance with p value <0.05 taken as statistically significant.

RESULTS

Of the 256 medical undergraduate students who participated in the current study, 53.52% were females and 82.03% of the respondents were >20 years of age. On the basis of religion, 53.51% and 42.97% belonged to Hindu and Muslim religion respectively, Table 1.

Table 1: Socio-demographic characteristics of respondents (N=256).

Socio-demographic variables	Frequency (%)
Sex	
Male	119 (46.48)
Female	137 (53.52)
Age group	
<20 years	046 (17.97)
≥20 years	210 (82.03)
Religion	
Hindu	137 (53.51)
Muslim	110 (42.97)
Others	09 (03.52)

95% of the males and 96% of the female respondents knew their blood group. About 90% of the respondents had knowledge of suitable age for blood donation and the number of times blood can be donated in a year. Only half of the respondents knew about minimum weight and suitable blood pressure for blood donation as well as beneficiaries of one unit of blood.

Regarding knowledge about minimum hemoglobin required for blood donation, only 60% of the respondents knew the exact levels. On some other parameters of knowledge like suitable pulse rate for blood donation, acquiring infection during blood donation, quantity of blood in a human being and necessity of donor signature, it was found that about 82-90% of the respondents had knowledge about them. When gender based statistical significance was calculated on knowledge parameters, it was found to be significant regarding age for blood donation, minimum weight for blood donation, suitable

blood pressure for blood donation, volume of blood collected during each donation and number of patients benefitted from one unit of blood ($p < 0.05$) Table 2.

Table 2: Knowledge of study subjects regarding blood donation (n=256).

Knowledge based questions	Males (119) N (%)	Females (137) N (%)	Total %	P
Do you know your blood group	113 (94.95)	132(96.35)	95.70	0.58
Who should donate blood	085 (71.42)	115 (83.94)	78.12	0.015
Suitable age for blood donation	101 (84.87)	131 (95.62)	90.62	0.003
What is the minimum interval between two blood donations	112 (94.11)	126 (91.97)	92.96	0.50
Minimum weight for blood donation	046 (38.65)	088 (64.23)	52.34	0.00
Minimum hemoglobin level required for blood donation	068 (57.14)	087 (63.50)	60.54	0.30
Suitable blood pressure for blood donation	054 (45.37)	079(57.66)	51.95	0.049
Suitable pulse rate for blood donation	103 (86.55)	120 (87.59)	87.10	0.80
What volume of blood can be collected during each donation	098 (82.35)	082 (59.85)	70.31	0.00
Number of patients that can be benefitted from one unit of blood	049 (41.17)	077 (56.20)	49.21	0.016
Does regular donation have medical benefits	067 (56.30)	073 (53.28)	54.68	0.62
Whether a person can acquire infection after receiving blood transfusion	107 (89.91)	126 (91.97)	91.01	0.56
What is the quantity of blood present in a healthy human being	103 (86.55)	108 (78.83)	82.42	0.10
Is donor signature/ thumb impression necessary for donation	101 (84.87)	122 (89.05)	87.10	0.31
Is paid blood donation banned in India	082 (68.91)	099 (72.26)	70.70	0.55

Table 3: Attitude about blood donation in the students under study (n=256).

Attitude based questions	N (%)	Males (n=119)	Females (n=137)	P
What do you think about blood donation practice				
Good	231 (90.23)	109 (91.59)	122 (89.05)	0.47
Bad	5 (1.95)	3 (2.52)	2 (1.46)	
Neutral	20 (7.82)	7 (5.89)	13 (9.49)	
What is your attitude towards blood donation				
Positive	148 (57.81)	65 (54.62)	83 (60.58)	0.001
Negative	25 (9.77)	20 (16.81)	5 (03.65)	
Neutral	83 (32.42)	34 (28.57)	49 (35.77)	
What do you think is the best source of blood donors				
Voluntary	199 (77.73)	90 (75.63)	109 (79.57)	0.002
Replacement	37 (14.45)	25 (21.01)	012 (08.76)	
Paid	20 (7.82)	04 (03.36)	016 (11.67)	
Are you willing to donate blood to your relative				
Yes	244 (95.31)	113 (94.96)	131 (95.62)	0.08
No	12 (4.69)	6 (5.04)	6 (4.38)	
Will you donate blood without knowing the religion of the recipient				
Yes	227 (88.67)	101(84.87)	126 (91.97)	0.07
No	29 (11.33)	18 (15.13)	11 (8.03)	
Do you expect any reward for blood donation				
Yes	80 (31.25)	37 (31.09)	43(31.38)	0.95
No	176 (68.75)	82 (68.91)	94 (68.62)	
What do you think people are reluctant to donate blood				
Fear of needle/blood	48 (18.75)	19 (15.97)	29 (21.17)	0.005
Fear of weight gain/loss	16 (6.25)	7 (5.88)	9 (6.57)	
It can lead to decreased immunity	12 (4.69)	8 (6.73)	4 (2.92)	
Objection from family	52 (20.31)	35 (29.41)	17 (12.41)	
It can lead to anaemia	128 (50.00)	50 (42.01)	78 (56.93)	

Attitude results revealed that about 90% of the respondents rated blood donation as a good practice. More females (60.5%) than males had positive attitude towards blood donation and this difference among the sexes was statistically significant also ($p < 0.05$).

Regarding best source of blood donation, higher proportion of females replied for voluntary blood donation while the response was for replacement donation from higher proportion of males.

Table 4: Practices of study subjects regarding blood donation (n=256).

Practice based questions	N (%)
Have you donated blood before	
Yes	76 (29.69)
No	180 (70.31)
How many times you have donated blood	
1	48 (63.15)
2	17 (22.37)
3	7 (9.21)
>3	4 (5.27)
Reasons for blood donation	
A relative needed blood	19 (25.00)
A known person other than relative needed blood	9 (11.84)
Voluntary basis	48 (63.16)
Are you satisfied after donating blood	
Yes	68 (89.47)
No	8 (10.53)
Are you willing to donate blood in future	
Yes	71 (93.42)
No	5 (6.58)
Have you been previously deferred for blood donation	
Yes	4 (5.26)
No	72 (94.74)
Did you face any problem after blood donation	
Yes	11 (14.47)
No	65 (85.52)

This association regarding best source of blood donation on basis of gender difference was found to be statistically significant ($p < 0.05$). About 90% of the respondents were willing to donate blood to a relative in case of need. 68% of the respondents did not expect any reward for blood donation.

When reasons for reluctance to donate, blood were explored, higher proportion of females replied that blood donation led to anemia and fear of needle among the main reasons. On the other hand, higher proportion of males reported that objection from the family for blood donation and decreased immunity after blood donation as among the chief causes for reluctance to donate blood. This difference of opinion among the students of either sex was found to be significant statistically ($p < 0.05$), Table 3. Regarding practices, it was found that only 29.69% respondents had donated blood. Of these donors, 63.15% were one time donors, 22.37% were two time donors and 9.21% were three-time blood donors.

When reasons for blood donation were elicited, 63.16% were found out to be donors on a voluntary basis and

25% donated when one of their relatives was in need of blood. 89.47% of the responded were feeling a sense of satisfaction after donating blood. 93.42% of the donors were willing to donate blood in near future and only 5.26% had been deferred for blood donation. An overwhelming 85.52% of the respondents didn't face any problem after they donated blood (Table 4).

DISCUSSION

The present study conducted among the medical students who happened to be a potential and accessible source of non-remunerated and safe blood donation has shown a good knowledge among the respondents about parameters of voluntary blood donation. 90.6% of the respondents knew about the suitable age for blood donation which was almost in line with the rates reported by Chopra et al (90%) and Aslami AN et al (85%).^{11,12} Almost 93% of the respondents knew about the interval between two blood donations. A slightly lower rate to the tune of 80% and 76% in this regard were reported by Agravat Amit et al and Meinia SK et al respectively.^{13,14}

Only 49.2% of the respondents in our study had correct knowledge about the number of patients that could be benefitted from a single unit of whole blood. In contrast Meinia SK et al reported this rate to be 68.6% while only 22% of the respondents knew it in a study by Manikandan et al.^{2,14} 91% of the respondents had knowledge about transfusion transmitted infections which concurs with those reported by Meinia SK et al.¹⁴ However in contrast Kowsalya V et al reported that only 32.4% of the respondents were aware of blood borne infections for which donated blood is tested.¹⁵

In current study, only 57.8% had positive attitude while 32.42% had neutral attitude towards blood donation. These results were in contrast to 96.6% and 94.6% positive attitude reported by Agravat Amit et al and Meinia SK et al in their respective studies.^{13,14} The willingness to donate blood voluntarily was 88.67% which augurs a positive hope for the drive towards a hundred percent voluntary blood donation. In a similar vein, Bhartwaj RS et al reported this rate to 85%.¹⁶ 88.6% of the respondents were willing to donate blood to anyone without knowing his/her religion. Similar results were reported by Aslami AN et al thus showing that religion hardly plays any role in donors decision to donate blood.¹²

Foremost reasons in the present study for not donating blood were occurrence of anaemia followed by objections from family. Meinia SK et al reported fear of needle, anemia occurrence after blood donation and objection from family members as the reasons for not donating blood among the respondents.¹⁴ Myths and misconceptions arising from cultural and social differences form a barrier to voluntary blood donation. Since young people can be prospective regular blood donors, they need to be educated about safe blood and healthy life styles need to be inculcated amongst them. 29.69% of the respondents had previously donated blood which is in agreement with that reported by Agravat Amit et al, Chopra et al and Nwogoh et al in their respective studies. In contrast to our results, higher rates of 43.4% were reported by Meinia SK et al while lower rates of 10% were reported by Aslami AN et al. Among the blood donors in the present study, 63.15% were one time donor and results concur with those reported by Meinia SK et al.¹⁷ Aslami AN et al reported that 71% of the blood donors had donated blood only once.

CONCLUSION

Without any doubt, voluntary non –remunerated blood donation remains the safest and the most ideal way for improving the quality of blood which is collected at blood transfusion departments across the nation. WHO has adopted a policy of attaining 100% voluntary non-remunerated blood donation by year 2020 and all nations in Southeast Asia Region are trying to eliminate culture of replacement donation and moving towards 100% voluntary blood donation.^{3,18}

The youth from medical colleges form a core group of readily available donors which need to be motivated and encouraged to participate voluntary in blood donation activities. It would be pertinent to add that awareness sessions are made part of regular training of medical undergraduates' right from the beginning of the course so as to ward off any misconceptions they might have regarding voluntary blood donation.

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REFERENCES

1. WHO. "Towards 100 % Voluntary Blood Donation, A Global Framework for Action,". Available at http://www.who.int/bloodsafety/publications/9789241599696_eng.pdf.
2. Manikandan S, Srikumar R, Ruvanithika PN. A study on knowledge, attitude and practice on blood donation among health professional students in Chennai, Tamil Nadu, South India. *Int J Sci ResPub.* 2013;3(3):1-4.
3. WHO. Blood safety and availability Available at <http://www.who.int/mediacentre/factsheets/fs279/en/>
4. Leikola J. Non-remunerated donations. *Dev Biol Stud.* 1993;8:51-6.
5. Garg S, Mathur DR, Garg DK. Comparison of seropositivity of HIV, HBV, HCV and syphilis in replacement and voluntary donors in Western India. *Indian J Pathol Microbiol.* 2001;44(4):409-12.
6. Marshall DA, Kleinman SH, Wong JB, Aubuchon JP, Grima DT, Kulin NA, Weinstein MC. Cost-effectiveness of nucleic acid test screening of volunteer blood donations for hepatitis B, hepatitis C and human immunodeficiency virus in the United States. *Vox sanguinis.* 2004;86(1):28-40.
7. Salonen JT, Tuomainen TP, Salonen R, Lakka TA, Nyyssonen K. Donation of blood is associated with reduced risk of myocardial infarction. *Am J Epidemiol.* 1998;148(5):445-51.
8. Real JMF, Bermejo AL, Ricart W. Iron stores, blood donation and insulin sensitivity and secretion. *Clin Chem.* 2005;51:1201-5.
9. Zaller N, Nelson KE, Ness P, Wen G, Bai X, Shan H. Knowledge, attitude and practice survey regarding blood donation in a North western Chinese city. *Transfus Med.* 2005;15:277-86.
10. Oswalt RM, Hoff TE. The motivations of blood donors and non donors: A community survey. *Transfusion.* 1977;15:68-73.
11. Chopra D, Jauhari N. Knowledge Attitude and Practices towards Voluntary Blood Donation among Medical Students in Barabanki. *Ind J Comm Health.* 2015;27(3):386-90.
12. Aslami AN, Jobby A, Simon S, Nazarudeen N, Raj P, Ramees M, et al. Assessment of Knowledge,

- Attitude and Practice (KAP) of blood donation among MBBS students of a Medical College in Kollam, Kerala. *J Evol Den Sci.* 2015;4(35):6086-95.
13. Amit A, Amit G, Gauravi D, Kakadia M. Knowledge, attitude, and practice of voluntary blood donation among medical students of PDU medical college India Rajkot. *Int J Curr Res.* 2014;6:6839-41.
 14. Meinia SK, Kumar Y, Meinia A, Singh G, Dutt N. A study to assess the knowledge, attitude, and practices about voluntary blood donation amongst the undergraduate medical students in Solan, North India. *Int J Med Sci Public Health.* 2016;5(12):2550-4
 15. 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(9):439-42
 16. 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. *J Clin and Diagnostic Research.* 2012;6(4, supplement 2):602-4.
 17. 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 transfusion.* 2013.
 18. Bharucha ZS. Donor management in South East Asian Region. *Dev Biol (Basel).* 2005;120:145-53

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