Original Article

Knowledge Level, Motivational Factors, and Potential Barriers Toward Blood Donation Among MBBS Students

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Author's Contribution

[1] Conception of study
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[1,6] Analysis/Interpretation/Discussion
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Abstract

Background: Blood is almost needed in every hospital for surgeries, traumas, transplantations, pregnancy complications, and thalassemia patients.

Objectives: The objectives of our studies were as follows: To assess the knowledge level of MBBS students about blood donation, to identify the obstacles and difficulties facing MBBS students towards blood donation, and to determine the factors that influence young people to donate blood.

Methods: A cross-sectional descriptive study involving 300 participants was carried out at **(study setting removed to maintain anonymity).** A stratified sampling technique was used. A printed self-administered questionnaire was used. The responses were recorded on a 5-point Likert scale.

Results: Only 76 out of 300 (25.3%) were blood donors. The chi-square test was used to find out the association of blood donation status with gender and knowledge level score. Men were more likely to donate blood than women. However, the blood donation status and knowledge level of participants were not related and scores of donors and non-donors were almost the same. Blood donors reported that the most common motivators for donating blood are to save other people's lives when someone they know is in need and feelings of self-satisfaction.

Conclusion: More males donate blood than females, but knowledge level doesn't affect blood donation, with donors motivated by saving lives and non-donors hindered by not being asked or not meeting criteria.

Keywords: knowledge; motivators; barriers; blood donations

Introduction

Blood is almost needed in every hospital for surgeries, traumas, transplantations, pregnancy complications, and thalassemia patients. The number of blood donors in Pakistan exceeds 1.5 million annually. Out of them, 65% are exchange donors, 25% are volunteer donors, and only around 10% are professional donors.[1]

According to the World Health Organization, every 2 seconds someone requires blood. There is a big disparity between blood needs and availability in many underdeveloped nations, so many patients pass away or endure needless suffering due to the unavailability of blood. [2, 3, 4]

Unfortunately, Blood is donated by a mere ten percent of eligible donors. Knowledge may be considered an essential component for blood donation because it is probable that when people are aware of facts, beliefs, and worries concerning blood donation, they will be inspired to donate blood.[2]

Furthermore, the smaller number of blood donors around the world can be attributed to a inadequate knowledge concerning eligibility requirements, the necessity of blood, and process of blood donation, including donors' well-being, location of blood banks, and the uses of blood, as well as several commonly accepted myths and incorrect assumptions.[5,6]

This study intends to evaluate medical students' desire and understanding regarding blood donation. The need for new donors must always be addressed in order to close the blood supply and demand gap. Therefore, it is crucial to understand the level of knowledge, the driving forces behind motivation, and any potential obstacles to blood donation to create effective solutions.[7, 8]

Materials and Methods

A descriptive cross-sectional study was carried out at the **(study setting removed to maintain anonymity)** from September 2022 to March 2023. Students from all professional years were enrolled randomly in this study by using a stratified sampling technique. The sample size for this study has been estimated to be 306 by using the Raosoft sample size calculator with a 95% confidence interval and a 5% margin of error.

Ethical approval

The ethical review board has approved our synopsis (ref letter number: PH-16-49-22). Participants were told about the study's objectives and informed consent was taken from each participant. Students who were not willing to give consent were not excluded.

Questionnaire

Data was collected from students using a printed self-administered questionnaire. The questionnaire used in this study was taken from previously published studies after written permission from their authors. It consists of the following four sections.

Section A: Sociodemographic Variables and Blood Donation Status

It includes age, gender, year of study, and status of blood donation. Respondents were classified according to their blood donation status into two groups; donors and non-donors.

Section B: Knowledge level of participants about blood donation:

It consists of 10 questions and one score was awarded for each correct response. Respondents obtaining scores above the mean were assumed to be having a better knowledge of blood donation.

Section C: Motivational Factors Towards Blood Donation

Only blood donors were permitted to access this section, it was used to evaluate what motivates people to donate blood. It included saving the lives of other people, incentives, free blood tests, a good attitude of staff, recognition or gratitude from society, the blood donation center's flexible hours, and a feeling of self-satisfaction.

These motivators were studied using a series of questions, with possible answers ranging from "Strongly agree" to "Strongly disagree" on a 5-point Likert scale.

Section D: Potential Barriers towards Blood Donation

Only non-donors are advised to use this section, it was used to identify the barriers towards blood donation. It included nobody asking them to donate blood, not fulfilling the criteria, fear of getting an infection, needles and dizziness, and unavailability of time.

The responses of the participants were recorded on a 5-point Likert scale. This is a linear scale ranging from "Strongly agree" to "Strongly disagree" as the possible outcomes.

Data analysis

Data collected from all participants through the questionnaire was extracted using Excel sheets and analyzed by using Statistical Package for Social Sciences (SPSS) version 26. The Chi-square test was used to examine the significant association between sociodemographic variable (gender) and blood donation status. The Mean knowledge level score of donors and non-donors was compared by using an independent t-test to find out the association between knowledge level and blood donation status. The barriers and motivators of respondents were analyzed by using frequency calculations.

Results

300 questionnaires, 149 from males and 151 from females were collected **(study setting removed to maintain anonymity).** Among respondents, 76 (25.3%) were blood donors and 224 (74.7%) were non-donors.

Association between sociodemographic variable (gender) and history of blood donation.

The association between blood donation status and gender of participants was ($p < 0.001$). This indicates that men are considerably more inclined to donate blood as compared to females (37.5% vs. 13.2%) (Table I) (Figure

Table I: Association between blood donation status and gender of participants

Variables	Total	Non-Blood Donor	Blood Donor	X^2	*p*	Df
	n=300	n=224 (74.7%)	n = 76 (25.3%)			
Male	149 (49.7%)	93 (31.0%)	56 (18.7%)	23.487	<0.001	1
Female	151 (50.3%)	131 (43.7%)	20 (6.7%)			

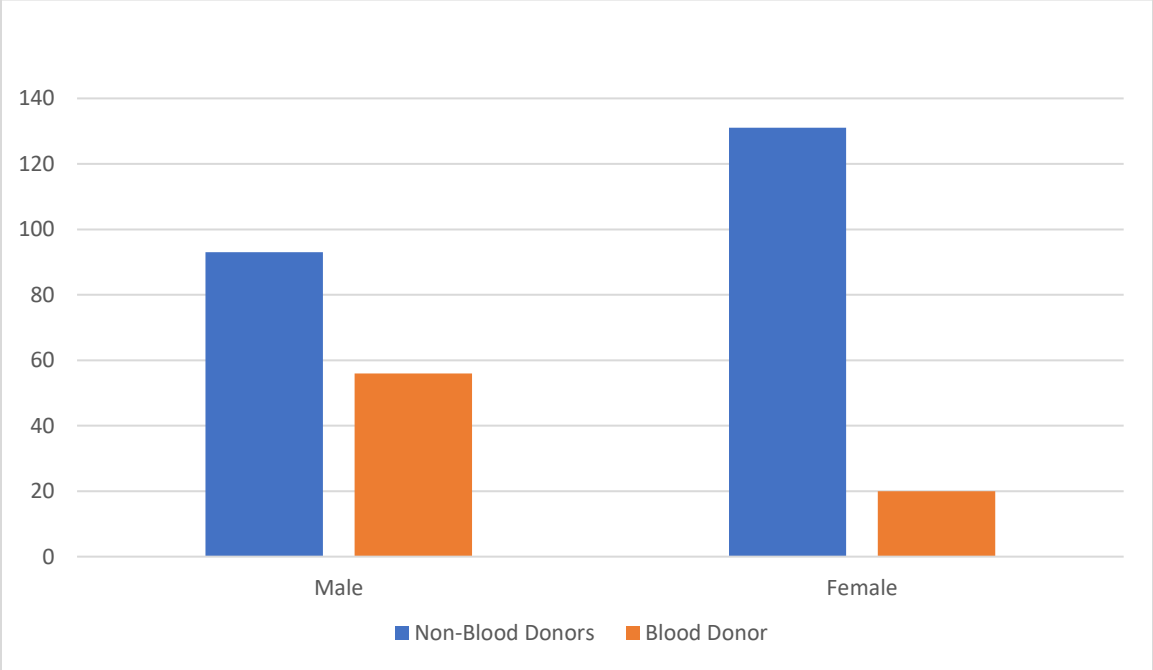

Figure 1: Association between blood donation status and gender of participants.

Knowledge level of participants about blood donation:

The blood donors' mean knowledge score seemed a little higher (M = 5.87, SD = 1.526) than non-donors (M = 5.46, SD = 1.766).

Table II: Association between Blood donation status and knowledge level of Participants

Knowledge level Score	N	Mean	Std. Deviation	Std. Error Mean
Donor	76	5.87	1.526	.175
Non-Donor	224	5.46	1.766	.118

Motivators/Facilitators of donating Blood

Blood donors reported the most common motivators for donating blood as saving the lives of other people (70% strongly agree, 26% agree) when someone I know is in need (58% strongly agree, 36% agree) and feeling of self-satisfaction (54% strongly agree, 29% agree).

Table III: Motivators/Facilitators of Donating Blood

Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. To save the lives of Other People	53(70%)	20(26%)	3(4%)	0(0%)	0(0%)
2. When someone I know is in need.	44(58%)	27(36%)	4(5%)	1(1%)	0(0%)
3. Incentives (gifts, certificates) for blood donation.	5(7%)	12(16%)	22(29%)	28(37%)	9(12%)
4. Blood donation allows me free blood tests.	7(9%)	22(29%)	12(16%)	24(32%)	11(14%)
5. Good attitude of the staff.	11(14%)	28(37%)	24(32%)	8(11%)	5(7%)
6. Recognition or gratitude from a society.	10(13%)	19(25%)	26(34%)	15(20%)	6(8%)
7. The blood donation center's flexible working hours	6(8%)	23(30%)	33(43%)	11(14%)	3(4%)
8. Appeals on television or because famous people donate blood.	8(11%)	12(16%)	16(21%)	17(22%)	23(30%)
9. Feeling of self-satisfaction.	41(54%)	22(29%)	7(9%)	5(7%)	1(1%)

Barriers to Donating Blood

Non-donors reported the most common barriers to donating blood as not being asked by anyone to donate blood (27% strongly agree, 29% agree), not fulfilling the criteria (body weight, blood pressure, hemoglobin, etc.) (20% strongly agree, 25% agree), and my parents don't allow me to donate blood (17% strongly agree, 26% agree).

Table IV: Barriers towards Donating Blood (Non-Blood Donors)

Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Because nobody asked me to donate blood.	60(27%)	64(29%)	42(19%)	52(23%)	6(3%)
2. My parents don't allow me to donate blood.	38(17%)	58(26%)	35(16%)	74(33%)	19(8%)
3. I might be infected with HIV or Hepatitis from giving blood.	23(10%)	35(16%)	30(13%)	96(43%)	40(18%)
4. Not fulfilling the criteria (Body weight, blood pressure, hemoglobin, etc.)	45(20%)	55(25%)	49(22%)	56(25%)	19(8%)
5. Fear of needles, feeling dizzy, etc.	22(10%)	48(21%)	40(18%)	91(41%)	23(10%)
6. I cannot find sufficient time for donating blood.	17(8%)	39(17%)	54(24%)	98(44%)	16(7%)
7. I have no idea where I could donate blood.	25(11%)	41(18%)	38(17%)	94(42%)	26(12%)
8. Because, I smoke.	10(4%)	15(7%)	22(10%)	111(50%)	66(29%)
9. Because our donated blood is sold.	19(8%)	25(11%)	45(20%)	95(42%)	40(18%)

Discussion

The aims and objectives of our study were to identify the motives and barriers towards blood donation among the students of **(study setting removed to maintain anonymity).** 300 students participated in our study and only 76 (25.3%) were blood donors. The association between blood donation status and gender of participants was significant and we found out more males are likely to donate as compared to females. Similar findings were also reported by studies carried out in Saudi Arabia, Qatar, and India.[9, 10]

The finding of our study showed that Knowledge level about blood donation is not correlated with history of blood donation. The mean knowledge score of donors and non-donors were almost the same; however, these results were contradictory to previously published studies, because participants in our study were medical students instead of the general public.[11, 12, 13, 14, 15]

"To save lives of other people", "when someone I know is in need" and "feeling of self-satisfaction" were the most common motivators reported by donors. These motivators were also reported by

the studies carried out in Qatar, India, China, and Turkey.[16, 17, 18, 19]

"Because nobody asked me to donate blood" and "failing to meet the requirements (body weight, blood pressure, hemoglobin, etc." were the most common barrier reported in our study by non-donors. The same barrier was also reported in studies conducted in the Netherlands and USA.[20, 2122, 23]Secondly, majority of non-donors reported that they were not allowed by their parents to donate blood.

This study has some limitations. Firstly, sample size used in this study is very small and better results can be obtained by considering a larger sample. Secondly, all participants in this study were medical students and it was conducted only in one medical college. Hence its results cannot be generalized to all over the Pakistan. We need further studies involving other schools, colleges, and universities.

Conclusion

The findings of our study showed that blood donation and gender of participants were correlated and more males donate blood than females. However, no correlation was found between knowledge level of participants and history of blood donation. Blood donors reported the most common motivators for donating blood as to save the lives of other people, when someone I know is in need and feelings of self-satisfaction. However, non-donors reported the most common barriers to donating blood as not being asked by anyone to donate blood, not fulfilling the criteria (body weight, blood pressure, hemoglobin, etc.), and not being allowed by parents.

References

1. Asif, N., kokhar, N., &Ilahi. HBV, HCV & HIV infection: seroprevalence among voluntary non _remunarated & replacement donors in Northern Pakistan.Pak J med sci ,2004

2. WHO and International Federation of Red Cross. Towards 100 % Voluntary Blood Donation: A global framework for Action [Internet]. Geneva; 2010.

3. Mirutse G, Fisseha G, Abebe L, Birhanu Z, Alemayehu M. Intention to donate blood among the eligible population in Mekelle City, Northern Ethiopia: using the theory of planned behavior. Am J Heal Res. 2014;2(4):158–63.

4.Tadesse W, Ayalew Y, Yisma E, Liben ML, Wudu M. Knowledge, attitude, practice and associated factorsMousavi F, Tavabi AA, Golestan B, Ammar-Saeedi E, Kashani H, Tabatabaei R, et al. Knowledge, attitude and practice towards blood donation in Iranian population. Transfus Med. 2011;21(5):308–17. towards voluntary blood donation among regular health science students of Samara University, Ethiopia. Heal Sci J. 2017;12(1):542.

5. Amal Ibrahim. Knowledge Level, Motivators and Barriers of Blood Donation among Adults at Qatar University; A Cross-Sectional Survey. Healthcare 9(8):926 DOI:10.3390/healthcare9080926;2021

6. Mousavi F, Tavabi AA, Golestan B, Ammar-Saeedi E, Kashani H, Tabatabaei R, et al. Knowledge, attitude and practice towards blood donation in Iranian population. Transfus Med. 2011;21(5):308–17.

7. Alfouzan, N. Knowledge, Attitudes, and Motivations towards Blood Donation: among King Abdulaziz Medical City Population. International journal of family medicine, 2014

8. Qureshi A. Confronting the misbeliefs pertaining to blood donation and transfusion: practices in India. Transfus ClinBiol,2018

9.Alsalmi MA, Almalki HM, Alghamdi AA, Aljasir BA. Knowledge, attitude and practice of blood donation among health professions students in Saudi Arabia; A cross-sectional study. J Family Med Prim Care. 2019 Jul;8(7):2322-2327. DOI: 10.4103/jfmpc.jfmpc_415_19. PMID: 31463250; PMCID: PMC6691417.

10 U S, A R, A P. The knowledge, attitude and practice towards blood donation among voluntary blood donors in Chennai, India. J ClinDiagn Res. 2013 Jun;7(6):1043-6. DOI:

10.7860/JCDR/2013/4851.3033. Epub 2013 Jun 1. PMID: 23905099; PMCID: PMC3708194.
11. Giri PA, Phalke DB. Knowledge and attitude about blood donation amongst undergraduate students of Pravara Institute of Medical Sciences Deemed University of Central India. Ann Trop Med Public Health. 2012;5:569-573.
12.Wiwanitkit V. Knowledge about blood donation among a sample of Thai university students. Vox Sang. 2002;83:97-99.
13. Gedefaw A, Mulugeta A, Zemene A, Mengistie B, Woldie M. Knowledge, Attitude and Practice Towards Voluntary Blood Donation and Associated Factors among Adult Residents in Ambo Town, Central Ethiopia. BMC Hematol. 2019;19:15.
14. Mahfouz MS, Ryani M, Saleh Hamzi NA, Zaeri DA, Dahdoh AA, Almalki AJ, Ali Hakami JA, Ahmed Aqeeli AA, Tawashi IH. Blood donation among university students: practices, motivations, and barriers in Saudi Arabia. Avicenna J Med. 2021 Apr 19;11(2):70-76. doi: 10.4103/ajm.ajm_113_20. PMID: 33996644; PMCID: PMC8101644.
15. Nuako I, Bedu GA, Ansong D. Knowledge, attitude and practice on blood donation among nurses in KomfoAnokye Teaching Hospital, Kumasi. Africa Sang. 2016;18(2):8-12

16. Ou-Yang J, Bei CH, He B, Rong X. Factors influencing blood donation: a cross-sectional survey in Guangzhou, China. Transfus Med. 2017 Aug;27(4):256-267. DOI: 10.1111/tme.12410. Epub 2017 Apr 6. PMID: 28382765.
17. Karacan E, CengizSeval G, Aktan Z, Ayli M, Palabiyikoglu R. Blood donors and factors impacting the blood donation decision: motives for donating blood in Turkish sample. TransfusApher Sci. 2013 Dec;49(3):468-473. DOI: 10.1016/j.transci.2013.04.044. Epub 2013 May 23. PMID: 23706312.
18. Saha S, Chandra B. Understanding the underlying motives and intention among Indian blood donors towards voluntary blood donation: A cross-sectional study. TransfusClin Biol. 2018 May;25(2):109-117. DOI: 10.1016/j.tracli.2018.01.002. Epub 2018 Feb 19. PMID: 29472138.
19. Rael CT, Pierre D, Frye V, Kessler D, Duffy L, Malos N, Van Tieu H. Evaluating blood donor experiences and barriers/facilitators to blood donation in the United States using YouTube video content. Transfusion. 2021 Sep;61(9):2650-2657. DOI: 10.1111/trf.16568. Epub 2021 Jun 30. PMID: 34196004; PMCID: PMC8597980.
20. Lemmens KP, Abraham C, Hoekstra T, Ruiter RA, De Kort WL, Brug J, Schaalma HP. Why don't young people volunteer to give blood? An investigation of the correlates of donation intentions among young nondonors. Transfusion. 2005 Jun;45(6):945-955. DOI: 10.1111/j.1537-2995.2005.04379.x. PMID: 15934993.
21. James AB, Schreiber GB, Hillyer CD, Shaz BH. Blood donations motivators and barriers: a descriptive study of African American and white voters. TransfusApher Sci. 2013 Feb;48(1):87-93. DOI: 10.1016/j.transci.2012.07.005. Epub 2012 Aug 21. PMID: 22920933.
22. Singh R, Aggarwal H, Kumar V, Shukla A, et al. Knowledge, Attitude, and Practice of Blood Donation among Healthcare Professionals: A Cross-Sectional Study from a Tertiary Care Hospital in North India. J Lab Physicians. 2021;13(1):35-40.
23. Hussain SA, Omer RAS, Abood FA, Abdullah AH. Knowledge, Attitude, and Practice Regarding Blood Donation among University Students in Basrah, Iraq. BMC Med Educ. 2020;20(1):333.