Original Article

Comparison of Perceptions about Blood Donation among Medical Students and General Public

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[1,2,3,5] *Experimentation/Study conduction*
[1,4,6] *Analysis/Interpretation/Discussion*
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Abstract

Objectives: To compare the perceptions about blood donation among medical students and the general public and to analyze different motivating factors for blood donation.

Materials and Methods: A comparative cross-sectional study was carried out from September 2022 to June 2023 among 1st and 2nd year medical students of Rawalpindi Medical University (RMU) and general public. 306 total participants with an equal number (n = 153) from each group were enrolled in the study by consecutive non-probability sampling. Data was gathered by a structured questionnaire. Participants' score was ranked as poor (1-3), fair (4-6), and good (7-8) based on their perception. Data was analyzed by using SPSS version 27.0. Descriptive statistics were applied. Pearson chi-square test was applied to evaluate the connection between values. P-value <0.05 was considered significant.

Results: 50.9% and 52.9% males were from medical college and general population respectively. Self-satisfaction was the main motivator among students (84.9%) and general community (71.2%). The main barrier to blood donation among 84.9% medical students was the perceived fear of blood screening while among general public it was the lack of dedicated outreach by organizations requesting blood donations.

Conclusion: Medical students knew more about blood donation than general public. The main motivation for blood donation in both groups was self-satisfaction, while the main obstacle for medical peers was the need for blood screening & in the nonmedical group was a lack of outreach by an organization seeking blood donation.

Keywords: blood donation, blood screening, medical students, perceptions

Introduction

The availability of blood for health services to fulfill clinical requirements. The act of donating blood is commonly regarded as an altruistic gesture of generosity.[1] It pertains to the utilization of blood transfusion as a crucial measure for sustaining and preserving life, as well as the implementation of therapeutic bloodletting as a primary medical intervention. Globally, the annual number of bloodwork donated exceeds one hundred million.[2]

Although there is a world worldwide donation of 100 million units of blood annually, it remains inadequate to satisfy the overall demand for blood. Annually, a substantial number of individuals worldwide require blood transfusions for diverse purposes. Approximately 44,000 blood donations are required, according to estimates.[3] It is reported that in addition to other hematological patients, there are about 56,000 worldwide thalassemia patients[4] only who need blood donation daily. American Red Cross states that someone needs a blood donation every 2 seconds in America and a single blood donation can save three lives.[5]

However, blood donations are 15 times lower in developing countries. More than 70 countries had a blood donation rate of less than 1% in 2006.[6] In low-income countries, 54 % of blood transfusions go to children less than 5 years of age; while in high-income countries, the most frequently transfused patient group is over 60 years of age, making up for up to 76% of all transfusions.[7]

About 25% of blood donations in Pakistan are from volunteers, states the Global Database on Blood Safety. Pakistan has a far lower rate of whole blood donations (10-19.9 per 1000 persons) compared to high-income countries (36.4%).[7] Blood donation chain works either by voluntary donors or involuntary donors. Voluntary donors donate blood by considering it a moral duty, while involuntary donors practice it according to requirements under the unavailability of other options. Donor screening is an important way to improve the overall safety of the blood supply. Voluntary blood donors who donate their blood once or twice a year are the safe ones.[8] In Pakistan, the majority of donations come from replacement donors (70%) while paid donors make up 10% of the country's blood supplies.[9]

Statistics show that 33% of blood donations globally are given by women. The percentage of blood donors relative to the percentage of blood needed is drastically low.[5] In 2020, a study was conducted to examine articles that presented time series data on blood donations and blood component transfusion. The findings indicated that the upper limit of age as per AABB criteria of the population was the primary factor linked to the rising demand for blood and the declining supply of blood.[10] It is also because of a lack of awareness of blood donation. According to a study, the provision of information about the donation process was found to be a significant motivating factor among individuals who have never donated before.[11]

Furthermore, the myths that blood donation causes unpleasant effects on one's health further reducing the number of blood donors. The factors that motivate blood donation are altruism/humanitarianism, personal or family credit, social pressure, replacement, and reward. Factors discouraging blood donation include fear of infection and other adverse effects and medical excuses.[12, 13] Public sentiments towards blood donation are not appreciable. Therefore, there is a need to take essential measures to change such concepts and perceptions in the public.

This study is intended to study and compare the perceptions about blood donation among medical students and the general public. The rationale for this study stems from the crucial role of blood donation in saving lives and supporting health systems. This study would enable us to identify potential barriers, misconceptions, and motivations that influence individuals' willingness to donate blood. The results will be helpful to strategic planners in taking suitable initiatives accordingly.

Materials and Methods

A cross-sectional comparative study among students of 1st and 2nd year Rawalpindi Medical University and the general public in surrounding areas of RMU. 0Our research went through a period of 10 months, from Sept 2022 to June 2023. We collected data in two groups of medical and non-medical peers with an equal number of participants. Our sample size is 306 using the Raosoft Sample Size Calculator with a confidence level of 95%, a margin of error of 5%, and a population size of 1500. Our sample size was further divided into two equal groups of medical students and the general public with 153 participants each. Medical students were from 1st and 2nd years of RMU, while the general public included participants from other professions. The age limit was between 18 to 50, excluding those having cardiovascular or other chronic disorders.

Following approval of this research proposal from Ethical Review Board of Rawalpindi Medical University, data were collected from participants with their informed consent. Data confidentiality was ensured. A structured questionnaire was used to collect data which comprised of four sections including demographic details, knowledge and perception of blood donation, barriers and motivating factors for blood donation.

Collected data were analyzed via SPSS software version 27.0. descriptive statistics were applied. Pearson chi-square test was used to measure the association between different variables. $P<0.05$ was taken as significant.

Results

Based on our analysis, there was no statistically significant variation observed in the gender composition between the two groups. In the medical group, male individuals accounted for 50.9% (n = 78), whereas in the non-medical group, males constituted 52.9% (n = 81) of the total participants.

In the medical group, the primary motivating factors for blood donation were a sense of self-satisfaction (84.9%) and the accessibility of donation centers to the general public (84.3%). Conversely, in the non-medical group, the most influential factor driving blood donation was also the sense of self-satisfaction (71.2%), followed by the organization of blood donation campaigns (68.6%). Table I provides a comprehensive summary of the various factors that motivated for blood donation.

Table-I: Motivating factors blood donation'

Variables	Medical students	General public
Natural disasters	73.8%	64.7%
Family/friends in need	83.6%	62.0%
nonmedical campaigns	83.6%	68.6%
Blood donation camps on large scale	81.0%	67.9%
Access of common man to donation centers	84.3%	59.4%
A countrywide holiday for blood donation by the government	52.2%	48.3%
Free medical checkups for donors	80.3%	60.7%
A confirmation message that you used donated blood for a noble cause	73.8%	57.5%
Feeling of self-satisfaction	84.9%	71.2%

In the medical group, the primary barriers to blood donation were attributed to the perceived necessity of blood screening (84.9) and limited access to information concerning the donation process for the general population (81.0). These factors significantly influenced individuals' decisions not to donate blood. Conversely, in the non-medical group, the most prevalent hindrance reported was the lack of proactive outreach from any individuals or organizations seeking blood donation. Approximately 66.7% of the cases cited this as the primary reason for not participating in blood donation.

Table II provides a comprehensive overview of the factors that impeded our cases from engaging in blood donation.

Table-II Factors hindering blood donation'

Factors hindering blood donation	medical students	General public
Blood donation is underrated	65.3%	66.7%
Common man has little access to donation centers	65.3%	54.2%
Fear of pain of needle	44.4%	52.3%
Never had time to donate blood	30.0%	41.8%
Not approached by anyone	32.0%	44.4%
Lack of blood screening	84.9%	58.8%
Common man has little knowledge about the benefits of blood donation	81.0%	62.0%

To assess the knowledge and awareness of our participants regarding blood donation, we administered a set of eight questions. These questions covered various aspects, including the minimum age and weight requirements for blood donation, the volume of blood extracted during a single donation, and the minimum time interval between successive donations. Based on the participants' responses to these questions, a knowledge score was calculated.

Individuals who obtained a score of 1-3 out of 8 were classified as having poor knowledge concerning blood donation. Those who scored 4-6 were generally considered to possess a moderate level of knowledge, while a score of 7-8 indicated a good level of knowledge in this domain.

A detailed summary of the knowledge scores for both groups can be found in Table III.

Table-III Knowledge score

Blood donation knowledge	Medical students	General public	P value
Poor	18.3%	26.1%	
Fair	61.4%	60.7%	0.07
Good	20.3%	13.2%	

Mean knowledge score among study participants was 4.91 ± 1.6.

Discussion

In Pakistan, most blood donations come from replacement donors, while the contribution of volunteers' donations is significantly small. University students are the potential source of a safe and healthy blood supply that can be easily approached, their misconceptions and fears can be addressed because of their education and openness to a discussion of cultural taboos and fear.[14] As blood-related diseases have much higher prevalence in our society like thalassemia,[15] anemia[16, 17] etc, moreover, emergency cases like roadside accidents require blood transfusion on an urgent basis; thus, there is a basic need to

improve knowledge about blood donation in our society. Our study is concerned with finding motives and hindrances that the society is facing in donating blood so that those loopholes can be filled and people can be more motivated in coming forward to eradicate taboos and fears from peoples minds and encourage them to donate blood.

Our research was concerned to compare how much knowledge about blood donation non-medics have as compared to medics and also to assess their perception towards blood donation. Results showed that most of the medical students knew about their blood groups while in non-medics about 10% didn't know their blood groups. We conducted our survey with interviews and using hard-copy of questionnaires filled out by our participants. Included questions were the amount of blood bled during rotation, the time required per donation, and the interval between two successive blood donations. We categorized our results on a scale of poor (1-3), fair (4-6), and good (7-8). Out of the 8 questions that were asked, 20% of the medical group scored good, while 18.3% scored poor. In the non-medical group, 13% scored good and 26% scored poor, while the rest in both groups scored fair.

The knowledge score of medical students was observed to be better than non-medical students. A similar study was conducted in Faisalabad that showed that medical students have adequate knowledge about blood donation.[18] In yet another study, medical students were shown to have above-average knowledge regarding blood donation. Still, there is room for development in areas like blood donation.[19] The findings of a recent study indicate a significant lack of awareness regarding blood donation among non-medical students.[20]Advertising strategies and campaigns that prioritize the urgent demand for blood donation has the potential to significantly contribute to the enlistment of new donors within the undergraduate student population.[21]

In the second part of our study, we emphasized different hindrances and barriers in the way of blood donation. According to a study, the primary obstacle that impedes individuals from becoming blood donors is fear.[22] But our study found that the most basic hurdle for the medical group was lack of blood screening services at donation (84.9%) and also little access to knowledge about blood donation (65.3%). In the non-medical group, the most prevalent barrier was the lack of a proactive approach by an organization seeking donations (66.7%). Other barriers included fear of needles, time-consumption, and lack of knowledge. The implementation of targeted awareness campaigns may serve as a potential solution to address obstacles hindering the act of voluntary blood donation.[23]The implementation of public education initiatives regarding blood donation, coupled with regular reminders to donors during times of shortage, holds promise for enhancing donor motivation and reducing obstacles to blood donation.[24]

The third part of our study considered different motivating factors for blood donation. For both groups family/friends in need (72%), and natural disasters (68.9%) proved to be the major motivating factor for blood donation. Other motivating factors were managing blood donation camps (74.5%), access to blood donation centers (72%), free medical checkups (70.5%), and feeling of self-satisfaction proved to be major motivating factors in both groups. Some participants of both groups mentioned country-wide holidays by the government to enhance the practice of blood donation (52.2%) of medical and (48.3%) of non-medics.

To enhance blood safety, it is recommended to give particular consideration to individuals who are first-time blood donors and fall within the age range of 25-40 years.[25] A possible limitation applied to our study was to consider healthy people between the ages of 18-30 mainly. Among both groups, participants between the ages of 18-30 were more motivated. This might be due to their young age as being energetic invokes people to be helpful for others. Another reason might be their insight pertaining to lack of any harmful effects in response to blood donation. Further studies involving multiple institutes or enrolling population from other geographical regions of the country would prove beneficial in retrieving the valid perceptions.

Conclusion

Medical students had adequate perception about blood donation than those of general public. Moreover, the practice of blood donation was better among medical students because of adequate understanding about blood donation and easy access to donation centers than those of general public.

References

1. Ferguson E, Murray C, O'Carroll RE. Blood and organ donation: health impact, prevalence, correlates, and interventions. Psychology & health. 2019 Sep 2;34(9):1073-104. https://doi.org/10.1080/08870446.2019.1603385.
2. Myers DJ, Collins RA. Blood Donation. In: StatPearls. Treasure Island (FL): StatPearls Publishing; January 29, 2023. PMID: 30247842.
3. American Red Cross. Blood Facts & Statistics. Available from: http://www.redcrossblood.org/learn-about-blood/blood-facts-and-statistics#donor-facts [last accessed on 2016 Feb 28].
4. Ehsan H, Wahab A, Anwer F, Iftikhar R, Yousaf MN. Prevalence of transfusion transmissible infections in beta-thalassemia major patients in Pakistan: a systematic review. Cureus. 2020 Aug 27;12(8). https://doi.org/10.7759/cureus.10070.
5. Biggers, A. Medical News Today. 2020 June. Retrieved from https://www.medicalnewstoday.com/articles/blood-donation-facts
6. Mamatya A, Prajapati R, Yadav R. Knowledge and practice of blood donation: a comparison between medical and non-medical Nepalese students. Nepal Med Coll J. 2012 Dec 1;14(4):283-6. PMID: 24579535.
7. World Health Organization. (2020, May). Retrieved from https://www.who.int/news-room/fact-sheets/detail/blood-safety-and-availability
8. Van den Burg PJ, Vrielink H, Reesink HW. Donor selection: the exclusion of high-risk donors? Vox sanguinis. 1998 Jun;74(S2):499-502. https://doi.org/10.1111/j.1423-0410.1998.tb05464.x.
9. Zaller N, Nelson KE, Ness P, Wen G, Bai X, Shan H. Knowledge, attitude and practice survey regarding blood donation in a Northwestern Chinese city. Transfus Med 2005; 15:277-86. https://doi.org/10.1111/j.0958-7578.2005.00589.x.
10. Oliveira EM, Reis IA. What are the perspectives for blood donations and blood component transfusion worldwide? A systematic review of time series studies. Sao Paulo Medical Journal. 2020 Apr 22; 138:54-9. https://doi.org/10.1590/1516-3180.2019.0415.r1.06112019.
11. Klinkenberg EF, Fransen MP, de Kort WL, van Weert JC, Huis EM. Blood donation among individuals of African origin in the Netherlands: how are barriers and motivators associated with intention? Blood transfusion. 2021 Jan;19(1):24. https://doi.org/10.1111/tme.12517.
12. Marantidou O, Loukopoulou L, Zervou E, Martinis G, EgglezouA, Fountouli P, et al. Factors that motivate and hinder blood donation in Greece. Transfus Med 2007; 17:443-50. https://doi.org/10.1111/j.1365-3148.2007.00797.x.
13. de Dios Luna del Castillo J. Attitudes, beliefs, and motivations in blood donors and non-donors. Sangre. 1996 Dec 1;41(6):427-40. PMID: 9148420.
14. World Health Organization. Global Database on Blood Safety, 2011 Pakistan Red Crescent Society; 2011. Available from: http://www.prcs.org.pk/blood_importance.asp. [last accessed on 2016 Feb 28].
15. Ghafoor M, Sabar MF, Sabir F. Prevention programs and prenatal diagnosis for beta-thalassemia in Pakistan: A narrative review. JPMA. The Journal of the Pakistan Medical Association. 2021 Jan 1;71(1 (B)):326-31. https://doi.org/10.47391/jpma.665.
16. Ullah A, Sohaib M, Saeed F, Iqbal S. Prevalence of anemia and associated risk factors among pregnant women in Lahore, Pakistan. Women & Health. 2019 Jul 3;59(6):660-71. https://doi.org/10.1080/03630242.2018.1544966.
17. Saqib M, Manzoor F, Shahid R, Naz S, Sharif S. Incidence of anemia among pregnant females of rural areas of Punjab. S Asian J Life Sci. 2019; 7:25-8. https://doi.org/10.1371/journal.pone.0239320.
18. Gomes MJ, Nogueira AJ, Antão C, Teixeira C. Motivations and attitudes towards blood donation among undergraduate health science students. Transfusion and apheresis science. 2019 Apr 1;58(2):147-51. https://doi.org/10.1016/j.transci.2018.12.018.
19. Javaeed A, Kousar R, Farooq A, Hina S, Ghauri SK, Tabbasum T. Knowledge, attitude, and practice of blood donation among undergraduate medical students in Azad Kashmir. Cureus. 2020 Apr 19;12(4). https://doi.org/10.7759/cureus.7733.
20. Mathew N. A study to assess the knowledge regarding blood donation among nonmedical students of selected colleges of Mount Abu,(Rajasthan). International Journal of Advances in Nursing Management. 2021;9(3):292-4. http://dx.doi.org/10.52711/2454-2652.2021.00065.
21. Tariq S, Jawed S. Knowledge and attitude of blood donation among female medical students in Faisalabad.

JPMA. The Journal of the Pakistan Medical Association. 2018 Jan 1;68(1):65-70. PMID: 29371721.

22. Asmawi UM, Osman M, Norimah Said MM. Barriers to blood donation in non-blood donors: A qualitative study. Envir Behav Proc J. 2019 Mar 1;4:59-64. https://doi.org/10.21834/E-BPJ.V4I10.1622.
23. Mohammed S, Essel HB. Motivational factors for blood donation, potential barriers, and knowledge about blood donation in first-time and repeat blood donors. BMC hematology. 2018 Dec;18:1-9. https://doi.org/10.1186/s12878-018-0130-3.
24. Otifi HM, Asiri MA, Ahmad MT, AlAsiri AA, AlOudhah SM, Alshorfi HA, Alalmai AM, Alam MM. Measuring public awareness about blood donation in Assir, South-Western Saudi Arabia. Transfusion Clinique et Biologique. 2020 Aug 1;27(3):122-7. https://doi.org/10.1016/j.tracli.2020.06.005.
25. Seighali F, Divkolaye NS, Rezaei N, Kangarloo M. Risk factors associated with human immunodeficiency virus infection in blood donors in Iran: A case control study. Asian J Transfusion Sci. 2021 Jul;15(2):183. https://doi.org/10.4103/ajts.ajts_47_18.