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Perception and Practices of University Students towards Blood Donation in Lahore Pakistan

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ABSTRACT

Background: Blood donation is essential for healthcare systems, yet voluntary donation rates remain low in many developing countries. University students, due to their accessibility and general good health, are an important demographic for donor recruitment. We aimed to assess perceptions and practices regarding blood donation among university students in Lahore, Pakistan.

Methods: A descriptive cross-sectional study was conducted at superior university, Lahore, with 100 undergraduate students aged 18 yr or older selected through non-probability consecutive sampling. Students with hemoglobinopathies were excluded. Data on demographics, donation history, awareness, and perceived barriers were collected through a structured questionnaire and analyzed using SPSS.

Results: Among participants, 52% were male, 57% were aged ≤21 yr, and 59% were from healthcare fields. Although 72% knew their blood group, only 22% had donated blood. Male students (P=0.002), older age (P=0.001), and non-medical fields (P=0.015) were significantly associated with donation history. Weakness (85%) was the most reported adverse effect, and fear of health problems (48%) was the most cited barrier. However, 88% expressed willingness to donate if the recipient was a relative or friend.

Conclusion: Despite high awareness and willingness, actual blood donation rates remain low, especially among females, younger students, and those in medical disciplines. The findings highlight the need for targeted educational interventions to address fears, correct misconceptions, and emphasize the safety and benefits of blood donation. Institutions should consider organizing frequent blood drives, integrating donation education into curricula, and offering recognition incentives to encourage long-term donor commitment.

Keywords: Blood, Blood donation, Healthcare practices, University students, Pakistan.

Introduction

Blood donation plays a vital role in saving lives and improving healthcare outcomes. However, a persistent disparity between blood supply and demand remains a major global health challenge. This imbalance is particularly alarming given the increasing need for blood transfusions due to the rising prevalence of anemia, cancer, and chronic illnesses (1, 2). The safest and most sustainable source of blood is from voluntary non-remunerated donors (VNRD), a practice strongly advocated by the WHO and other international health agencies (3). Nevertheless, more than half of the global population refrains from donating blood, often due to misconceptions and fears regarding potential health risks (3, 4).

While first-time donors may experience anxiety, repeated donations are typically associated with reduced fear and greater confidence. According to the WHO, approximately 38% of VNRD are under the age of 25, underscoring the critical role young people can play in maintaining a stable blood supply (5). Youth, particularly students, are often in good health and readily accessible, making them an ideal population for safe and regular blood collection. However, their willingness to donate is influenced by multiple factors, including knowledge, attitudes, social norms, and perceived barriers or facilitators (5, 6). Altruism remains the leading global motivation for blood donation.

Although alternatives such as erythropoietin and hematinic supplements may reduce transfusion requirements in certain clinical contexts, they are inadequate substitutes during emergencies. A reliable transfusion system ultimately depends on consistent voluntary participation (4, 6). In many regions, cultural beliefs and the expectation of monetary compensation continue to hinder voluntary donation efforts (4, 6). Educational institutions, especially universities, are strategically positioned to mobilize young, healthy individuals as regular donors. Gaining insight into their knowledge levels, perceptions, and motivations is critical for designing effective blood donation campaigns and improving donor retention (3, 5).

In Pakistan, the demand for a safe and sufficient blood supply continues to rise, yet voluntary donation rates remain suboptimal, particularly among young adults. University students, who represent a substantial and generally healthy demographic, remain an underutilized donor group. Despite ongoing awareness initiatives, misconceptions and negative attitudes toward blood donation persist—especially in developing countries. Assessing the knowledge, attitudes, and practices of university students in Lahore is essential for identifying gaps, dispelling myths, and developing targeted strategies to enhance voluntary blood donation among this key population.

Materials and Methods

This descriptive cross-sectional study was conducted at superior university, Lahore, Pakistan, to assess university students' knowledge, attitudes, and practices regarding blood donation. Overall, 100 undergraduate students aged 18 yr and above were recruited using a non-probability consecutive sampling technique. The sample size was determined based on accessibility and aligned with similar studies conducted in Pakistan and other low- and middle-income countries.

Informed written consent was obtained from all participants prior to data collection, and the study was conducted in accordance with the ethical guidelines of the declaration of Helsinki (1964, revised 2000).

Participants were assured of confidentiality and anonymity, and their participation was voluntary. Students with known blood disorders, including thalassemia and sickle cell anemia, were excluded. Data were collected using a structured questionnaire that covered demographic information (age, gender, academic discipline), blood group, donation history, any adverse effects experienced during past donations, and reasons for not donating blood. All data were analyzed using SPSS ver. 23 (IBM Corp., Armonk, NY, USA), with findings presented using descriptive statistics.

Results

Overall, 100 university students participated in the study. Of these, 52 (52.0%) were male, and 57 (57.0%) were aged 21 yr or younger. Fifty-nine students (59.0%) were enrolled in healthcare-related programs, while 41 (41.0%) were from non-medical academic fields (Table 1). The majority of students (72.0%) reported knowing their blood group, and 22 (22.0%) had a prior history of blood donation. Stratified analysis revealed statistically significant associations between blood donation history and several demographic variables. Male students were significantly more likely to have donated blood than females (*P*=0.002). Similarly, students aged 22 yr or older were more likely to have donated compared to their younger counterparts (*P*=0.001), and those studying in non-medical fields were also significantly more likely to have donated (*P*=0.015). Among those donated blood, the most commonly reported adverse effect was weakness and lethargy, experienced by 85 (85.0%) participants. Fear of potential health problems was cited by 48 (48.0%) students as the primary reason for not donating blood. Notably, 88 (88.0%) students expressed willingness to donate if the recipient were a family member, friend, or colleague (Table 2). Additionally, 82 (82.0%) students correctly identified that individuals aged 16 yr or younger are ineligible to donate blood.

Table 1: Demographic and clinical variables (n=100)

Variables		***Results N(%)***
Gender	Male	52 (52.0)
	Female	48 (48.0)
Age	≤21 yr	57 (57.0)
	≥22 yr	43 (43.0)
Education	Medical	59 (59.0)
	Non-medical	41 (41.0)
Awareness of blood group type	Aware	72 (72.0)
	Not aware	28 (28.0)
Prior history of blood donation	Present	22 (22.0)
	Absent	78 (78.0)
Adverse effects of blood donation	Weakness and lethargy	85 (85.0)
	Allergic reaction	08 (8.0)
	Infection risk	07 (7.0)
Reason of not donating blood	Fear of health problem	48 (48.0)
	Lack of information	29 (29.0)
	Fear of pain	17 (17.0)
	Fear of weight loss	06 (6.0)

Table 2: Stratification of data with regards to prior history of blood donation (n=100)

Variables		***History of prior blood donation N(%)***		***Pearson chi-square***	***P-value***
		Present	Absent		
Gender	Male	18 (34.6)	34 (65.4)	10.047	0.002
	Female	04 (8.3)	44 (91.7)		
Age	≤21 yr	06 (10.5)	51 (89.5)	10.169	0.001
	≥22 yr	16 (37.2)	27 (62.7)		
Education	Medical	08 (13.6)	51 (86.4)	5.975	0.015
	Non-medical	14 (34.1)	27 (65.9)		

Discussion

The present study reveals a significant gap between knowledge and actual blood donation behavior among university students in Lahore, Pakistan. Although many students demonstrated awareness of their blood group and expressed a willingness to donate, actual donation rates were low—particularly among females, younger individuals, and students enrolled in medical fields. This finding is somewhat unexpected, given that medical students are generally presumed to possess higher health literacy. The most commonly cited barriers to donation were concerns about health risks and insufficient information, with weakness and fatigue reported as the most frequent adverse effects following donation.

Comparable findings have been reported in other regions. In Sharara, Saudi Arabia, 500 male participants, 58.2% had previously donated blood, most often for family members or friends (7). Common misconceptions—such as the belief that individuals over 45 cannot donate—along with reasons like weakness or not being asked to donate, were prevalent among non-donors (7). In Karachi, a survey of 600 medical students showed that although 92% had good knowledge about blood donation, only 42% held a positive attitude, and just 50% expressed willingness to donate (8). Similarly, 40.7% of non-donors refrained from donating simply because they were never asked, and that voluntary donors were more likely to have positive donation experiences and to donate again (9). A systematic review of 18 studies from 17 developing countries identified misinformation, fear, and reluctance to donate without compensation as widespread barriers. Notably, even positive attitudes did not always translate into action, and concerns surrounding paid donation practices were common (10).

In Tehran, only 26% of participants had ever donated blood, though 55% of them were repeat donors. Altruism and encouragement were key motivators, while limited access to donation centers posed a major challenge (11). In Kathmandu, another study reported a donation rate of just 18%, with male participants significantly more likely to donate. Although overall knowledge about blood donation was low, it was positively associated with donation behavior. Lack of information and not being asked to donate were again noted as primary obstacles (12).

Young individuals—particularly students—represent a critical demographic in efforts to mitigate blood shortages (13). Factors such as

attitudes, social norms, perceived control, and accurate knowledge substantially influence donation behavior in low-income settings and could play a pivotal role in enhancing the blood supply and improving public health outcomes (13, 14). However, future challenges include recruiting a more diverse donor base, adapting to technological advancements, and addressing the global blood shortage. Potential solutions include the development of artificial blood, expansion of donor networks, and improved donor retention strategies (13, 14). Anxiety related to donation and lack of public education continue to act as significant barriers, highlighting the need for awareness campaigns (15, 16). The use of blood donation management software, mobile applications, and artificial intelligence could help streamline communication and improve donor engagement. These innovations may address ongoing recruitment and retention challenges observed across both developing and industrialized countries (13, 17). Furthermore, improving safety protocols to prevent disease transmission and addressing ethical concerns—such as donor discrimination—are essential to maintaining a safe and equitable blood supply (13, 18).

This study has several limitations that should be considered in future research. The relatively small sample size restricts the generalizability of the findings, and the study was conducted at a single institution, potentially limiting its applicability to other regions or educational settings. The use of a non-probability consecutive sampling technique introduces selection bias, as participants were recruited based on availability and willingness, have resulted in an overrepresentation of certain subgroups. Additionally, the lack of pre-testing for the structured questionnaire may have compromised the clarity and interpretability of some items, thus affecting data validity. Future studies would benefit from larger, multi-institutional samples and the use of pre-validated survey instruments. Longitudinal research designs could provide insights into the sustained impact of educational interventions, while qualitative approaches may offer deeper understanding of the underlying motivations and barriers influencing blood donation behavior.

Conclusion

This study highlights a notable gap between awareness and actual practice of blood donation among university students. Despite a high awareness of blood group and a willingness to donate, actual donation rates were low**,** especially among females**,** younger students and those in medical fields**,** which is somewhat counterintuitive. The primary barriers to donation were fear of health problems and lack of information, with weakness and lethargy being the most frequently reported adverse effects. These findings emphasize the need for targeted awareness campaigns and educational interventions, particularly within medical faculties, to address misconceptions and encourage voluntary blood donation. Strengthening student knowledge, dispelling myths, and promoting positive attitudes could help improve donation rates and support blood transfusion services in Pakistan.

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Conflict of interest

The authors declare that there is no conflict of interests.

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