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Knowledge, Attitude, and Practice of Blood Donation among Medical Students at Kabul University of Medical Sciences 2023

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ABSTRACT

Aim: The purpose of this research is to assess the knowledge, attitude, and practice (KAP) of blood donation among medical students at Kabul University of Medical Sciences, focusing on their awareness and motivations.

Research Method: This research employs a cross-sectional descriptive study design, utilizing a non-probability sampling method. Data were collected using a pre-tested questionnaire containing 25 standardized closed-ended questions. The survey was conducted among 375 randomly selected undergraduate medical students at Kabul University of Medical Sciences. Statistical analysis was performed using SPSS version 26, with descriptive statistics for demographic variables and inferential statistics to explore associations between variables.

Research Results: The study revealed moderate knowledge about blood donation among the participants, with a generally positive attitude but low practice rates. Only a small percentage of students had donated blood. The analysis identified that misconceptions and a lack of awareness about the importance of blood donation were prevalent, especially among female students. The relationship between knowledge and actual blood donation practice was statistically significant (P value = 0.02).

Conclusion: The findings highlight the need for targeted educational interventions to improve blood donation practices among medical students. Addressing the identified gaps in knowledge and attitude through educational programs could significantly enhance blood donation rates, contributing to better healthcare outcomes in Afghanistan.

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Introduction

Human blood is essentially a vital, lifesaving component, capable of saving millions of lives if available. According to the World Health Organization (WHO), at least 1% of the nation's population should donate blood voluntarily to meet the basic requirements for blood and blood products [1].

Access to safe blood is a key component of effective health care and voluntary donors are the basis of a safe blood supply. Developed countries with well-structured health systems and blood transfusion services based on voluntary blood donation are generally able to meet the demand for blood and blood products [2]. Safe blood saves lives, Women need blood with complications during pregnancy and childbirth, children with severe anemia, often resulting from malaria or malnutrition, accident victims, and surgical and cancer patients.

There is a constant need for a regular supply of blood because it can be stored only for a limited period before use. Regular blood donation by a sufficient number of healthy people is needed to ensure that blood will always be available whenever and wherever it is needed [3].

Blood is the most precious gift that anyone can give to another person – the gift of life. A decision to donate your blood can save a life, or even several if your blood is separated into its components – red cells, platelets, and plasma – which can be used individually for patients with specific conditions. [4].

Healthcare puts a greater deal of emphasis on the giving and receiving end of blood donation; it is an emergency mode waving in countries like Afghanistan as numerous explosions, suicide attacks, or injuries caused by war churn out a need for blood. blood services in Afghanistan are still facing a shortage of blood all over the country, and the demand for blood is rising daily, particularly in some large cities where some surgeries are delayed or even canceled for lack of blood [5].

The blood donation process from the time you arrive until the time you leave takes about an hour. The donation itself is only about 8-10 minutes on average. [6]. Some studies reported that positive attitudes, beliefs, altruism, and a high level of knowledge are associated with a higher likelihood of becoming a blood donor.

Medical students are expected to have good knowledge, be aware of the shortage of blood and they will potentially promote blood donation [7].

Studies reported that the KAP studies provided information on strategies that could be formulated to sustain voluntary blood donation [8]. Our study aimed to assess the KAP of blood donation among Kabul Medical University students, estimate the positive factors associated with being a blood donor, and help improve the effectiveness of donor recruitment in Afghanistan.

It has been seen that lack of knowledge, fear, facilities, convenience and the quality of service are common factors in people's decisions on whether to donate blood repeatedly on a voluntary basis. Indeed, understanding blood donors' motivations is crucial to improving the effectiveness of donor recruitment and retention programs. This information would help tailor targeted programs and campaigns more precisely in the future to recruit more people as regular, non-remunerated, voluntary donors [9].

In the present study, the existing level of knowledge in different demographic groups among donors and non-donors was compared, and factors that motivate or discourage individuals from donating blood were explored. We also ascertained the experience of blood donors with regard to their previous donation, opinions regarding the services provided by blood banks and the effectiveness of various communication media in motivating people.

Blood scarcity is frequently encountered in health care settings and is attributable to an imbalance between increasing demand for safe blood and blood products on the one hand and failure to organize regular blood supply due to misconceptions, perceived harms and risks, and lack of motivation among potential donors. Medical college students can serve as a readily available pool of voluntary blood donors for the attached medical college hospitals and help tide away some of the scarcity of blood and blood products. However, different studies involving medical students have expressed concern on the low level of awareness and unsatisfactory voluntary blood donation practices among them. Some studies have also shown poor blood donation practice among the students in spite of relatively good knowledge and favorable attitude toward voluntary blood donation. The prevalence of voluntary blood donation is reported to be even lower among the females. Thus, there is a need to explore the different factors that can contribute toward voluntary blood donation [10].

Materials and Methods Type of Study
This was a cross-sectional, observational study aimed at assessing the knowledge, attitudes, and practices (KAP) of medical students regarding blood donation.

Research Location
The study took place at Kabul University of Medical Sciences in Kabul, Afghanistan.

Duration
Data collection occurred from September to December 2022.

Sample Technique
A sample size of 383 students was calculated using Epi Info software, with a 10% buffer for non-responses.

Participants
The study involved undergraduate medical students from a population of 3,467 at Kabul University of Medical Sciences.

Sample size
The sample size from the target population, (3467) using Software Epi Info, Version 7.2.5.1. with comment expected 50% frequency, 95% confidence interval, and 5% standard error 346 students were selected by considering 10% (35 people) of nonresponse the sample size was 381 students out of 26804.

Study Methodology
The nature and purpose of the study was explained to all students who were present in the respective classroom on the day of survey, and an informed consent for participation was taken. All those who expressed their consent to participate in the study were enrolled in the study. For data collection, a pretested, close ended, structured questionnaire was distributed to the study participants. Basic information such as sociodemographic data and information regarding KAPs of blood donation was elicited using the same questionnaire. After the collection of the baseline information, a brief interactive awareness session, along with a detailed PowerPoint presentation addressing voluntary blood donation, was organized for the participants and their willingness to donate blood was again noted at the conclusion of the session.

Data Sources and Measurement
Knowledge Scoring
As a result، the answer to more than 9 questions، good knowledge، 6-9 questions، average knowledge and less than 6، low knowledge and less than 6، bad knowledge of the category.

Attitude (Attitude Scoring)
This study was assessed by answering 8 questions. Answers have three possible options. 3 points, sure (2 points), with the right answer. On average (12-18 points) is divided between medium (18-12 points) and low (less than 12points).

Performance Measurement (Scoring Exercise)
Performance will be measured by the one that indicates whether or not the person has donated blood. Here donors are asked different questions about the frequency and timing of blood donation. The donors are asked questions about the motivation to donate blood. But non-donors are asked various questions to assess the reasons for not donating blood or restrictions on blood donation. In this section, we will also assess the motivations and limitations of participants.

Data Analysis Methods (Statistic Methods)
The statistical analysis was carried out with SPSS (version 26, SPSS Inc.). Qualitative or categorical variables were described as frequencies and proportions. Differences in examined variables were assessed by the Chi square test. data entry of all questionnaires was done in the software, descriptive statistics and chi square were used for data analysis. $P<0.05$ was considered statistically significant.

Consent and Ethical Issues
The approval of Institutional Ethics Review Committee was taken before starting the study. The proposal of research along with the questionnaire was submitted to the public health faculty Institutional Review Board prior to the distribution and interview, and the IRB was obtained from the public health faculty research committee, an informed consent letter was obtained from each participant prior to their participation. All the ethical issues have been considered according to the declaration of Helsinki.

Result

A total of 375 students participated in the study, 187 (49.9%) male and 188 (50.1%) female. The age range was 17–30 years, the mean age being 21.72 ± 1.96 years.

Demographic Specifications

The age of the participants was 21.7 years، the standard was 1.96 years، and the least common was 17، and the most of them was 30 years.

Age	Medium	Standard deviation	Mode	highest	Lowest
	21.72	1.96	21	30	17

The participants were 49.9% male and 50.1% female, the age range of participants was between 17 to 30 years in this study was divided into three categories (20-17), (25-21) and (25 years older) 27.2% in ages (17 to 20), 63.8% in (21-24 years) and 7.6% in age (25-30 years). 91% of the participants were single and 9% were married. 63% lived in their home with family and 37% in the hostel. 17.6% of the participants were first class, 17.9% of the second class, 23.5% 37% were third class, and 25.6% of the grade, and 15.5% were class five.

Table 1: Demographic Characteristics of Participants

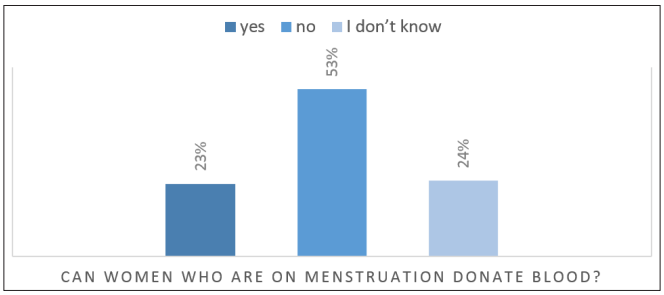
Variables	Frequency	Percentage
Sex		
Male	187	49.9%
Female	188	50.1%
Age		
17_20	102	27.2%
21_24	239	63.8%
25_30	28	7.6%
No response	6	1.4%
Year of Education		
First	66	17.6%
Second	67	17.9%
Third	88	23.5%
Fourth	96	25.6%
Fifth	58	15.5%
Housing		
Home	236	63%
Hostel	139	37%
Material status		
Single	338	91%
Married	34	9%
No response	3	%0.8

Knowledge about Blood Donation

The study assessed knowledge among participants using 12 questions, categorizing the results into three levels: good knowledge (scores above 9), acceptable knowledge (scores between 6 and 9), and low knowledge (scores below 6). The findings revealed that 174 participants (46.4%) demonstrated good knowledge, 190 participants (50.7%) had an acceptable level of knowledge, and 11 participants (2.9%) exhibited very good knowledge. These results indicate that the majority possess an intermediate understanding, particularly regarding medical laxatives and their impact on blood.

Table 2: Knowledge Questions about Blood Donation

	Questions	Yes	no	I don't know
1	Do you know your blood group?	350 (93%)	25 (7%)	
2	When someone donates blood, does the amount of blood in the human body return in 24 to 48 hours?	143 (38%)	117 (31%)	114 (31%)
3	Can women who are in menstruation donate blood?	86 (23%)	198(53%)	91 (24%)
4	Can pregnant women donate blood?	31 (8%)	335 (89%)	9 (3%)
5	Can breastfeeding women donate blood?	110 (30%)	149(38%)	115 (32%)
6	Can a sick person donate blood?	37 (10%)	326 (87%)	12 (3%)
7	Should people pay when they need to receive blood?	126 (34%)	192 (51%)	55 (15%)
8	Can a person get sick from blood donation?	146 (39%)	181 (48%)	47 (13%)
9	Do people with HIV, Hepatitis, B, and C donate blood?	30 (8%)	331 (88%)	12 (4%)
10	Can people under the age of 16 donate blood?	111 (29%)	209 (56%)	54 (14%)
11	Is your blood tested before it is given to other people?	281 (75%)	31 (8%)	63 (17%)
12	Can smokers donate blood?	182 (48.5%)	137 (36.5%)	55 (15%)



In our findings, most people incorrectly believed that women couldn't donate blood during menstruation. In fact, women can donate as long as they meet standard eligibility criteria, such as having sufficient hemoglobin and being in good health. While menstruation may slightly affect hemoglobin levels, it does not prevent donation unless the individual feels unwell. This highlights a significant gap in public knowledge, underscoring the need for greater awareness about blood donation practices.

Attitude Toward Blood Donation

In this study، three sections (good classification، and 8 questions) evaluated the opinion by answering 8 questions. Good (24-18) middle (12-18 points) and low (less than 12) points. Among the participants، 310 (82.7%) have 62 tons (16.5 %) which are being averaged at the same time. The present (0.8%) has a mental and mental level، these findings show that medical university laxatives use blood with good consideration.

Table 3: Attitude toward Blood Donation

	Questions	Yes	no	I don't know
1	Blood donation is an important human duty.	341 (91%)	27 (7.3%)	6 (1.7%)
2	If I donate blood.	290 (78%)	68 (18%)	14 (4%)
3	Blood donation helps patients in need.	362 (97%)	5 (1.2%)	3 (0.8%)
4	I encourage people to donate blood.	303 (81%)	60 (16%)	10 (3%)
5	Donating blood will cleanse the donor's blood.	200 (53%)	115 (31%)	50 (14%)
6	Everyone should know about blood donation.	341 (91%)	22 (7%)	4 (2%)
7	I do not think I have enough blood to donate.	151 (40%)	163(43.5%)	56 (15%)
8	My blood becomes anemia, anemia, anemia and my slimming	109 (30%)	143 (38%)	119 (32%)

Performance on Blood

The study's findings show that only 61 of the total participants (375n) donated blood. The findings suggest that blood donation culture among young people is significantly low, and only 16 percent of those included in the study donated blood, which is not satisfactory in a medical community that should be a model for other people to donate blood.

Understanding the Motives of Blood Donation

Of the 61 blood donors, 98% donated blood to help their fellow human beings, while 3.5% did so within the shortest possible time to receive prizes

Table 4: Motives of Blood Donation

Reason for donating blood among current donors (n=61)	n	%
Altruism	38	62,3%
I have donated blood to maintain my health.	8	13,2%
I have donated blood to purify and stimulate blood production.	2	3,2%
I have donated blood for relatives and friends who need it.	11	18%
I have donated blood to receive (money and gifts).	1	1.6%
I have donated blood for a free health assessment.	1	1.6%

Limitations on Blood Donation

Of the 314 participants who did not donate blood, the majority, 79%, indicated that their reason for not donating was the lack of compensation. Meanwhile, 2% cited fear of needles and blood as the primary reason for their reluctance to donate.

Table 5: Limitations on Blood Donation

Reason for donating blood among current donors (n=61)	n	%
No one has asked me to donate blood.	184	58%
I do not have access to blood donation centers.	37	11.7%
My family does not allow me to have blood donations.	22	7%
I am unfit to donate blood.	41	13.1%
Fear of needles.	7	2.2%
If I donate blood, I will get infected with diseases.	23	7.3

Discussion

College students, especially in the health care sector, have often been recruited globally for KAP surveys and blood donation sensitization programs. Given that no prior surveys on blood donation have been conducted in Afghanistan, this marks the country's first KAP (Knowledge, Attitudes, and Practices) survey on the blood donation topic. Medical students have been chosen as the initial target population due to their critical role within the healthcare system and their advanced educational background. Their knowledge and attitudes are not only indicative of the level of awareness among future healthcare professionals but also serve as a valuable proxy for understanding public awareness in the broader population. By focusing on this group, the survey aims to provide insight into the general trends and gaps in knowledge that may be present in the wider community, thus helping inform future public health strategies and educational interventions. Afghanistan blood centers face many challenges in recruiting enough voluntary blood donors because of the low willingness for blood donation in Afghanistan as we found out in this study. Medical workers and students with higher education and more special medicine knowledge than the general population are considered as a significant task force and will potentially participate in the promotion of blood donation. Kabul University of Medical Sciences students are not only students but also workers in hospitals, and their donation KAP could affect the willingness of patients and their families towards blood donation. In the study we observed that according to the demographic data, the female was less likely to be blood donors than the male, which was similar to the finding in previous studies that were conducted in different countries. In this study The analysis and evaluation of the data collected from this study reveal that 46.4% of participants demonstrated good knowledge, 50.7% exhibited moderate knowledge, and 2.9% showed poor knowledge regarding blood donation. These results indicate that most medical university students have a moderate understanding of the topic. Notably, female students displayed a higher level of good knowledge compared to their male counterparts, and a significant correlation was observed between age and knowledge about blood donation. Among the 375 participants in our survey, 82.7% had a positive attitude, 16.5% had a moderate attitude, and 0.8% had a negative attitude. These findings indicate that most medical university students had a good attitude towards blood donation. No significant relationship was found between attitude and educational level or other variables, with only a relatively slight relationship between attitude and gender being observed. The main reason for the result is about the traditional belief. Many females believe the loss of blood would result in weakening of health and vitality. Therefore, the education system should be designed better and ensure to make more effective efforts scientifically based context that aim about dispel the traditional beliefs. Similarly, in all the studies conducted, the attitude towards blood donation was found to be positive and good, as in our study, and very few had a negative attitude towards this subject. A similar research conducted in Saudi Arabia in 2021 reported that 74.5% of participants had adequate knowledge on the subject, with knowledge levels increasing alongside age and educational attainment [11]. Furthermore, a multi-center cross-sectional study in 2020 involving nursing students from Spain and Portugal found that a considerable proportion of participants had limited knowledge about blood donation, highlighting a significant association between awareness levels, gender, and age [12]. On the other hand, a 2020 cross-sectional study in Kashmir, Pakistan, found that knowledge increased with higher educational levels, and female students outperformed male students in terms of knowledge [13] Additionally, various studies conducted in cities of Iran cited the motivation for blood donation as helping others, similar to our

findings [14,15]. In 2016, a cross-sectional research of medical students in India revealed that 74% of the participants have adequate information about blood donation, with male students having a greater level of awareness than female students [16]. The results of all the research listed are either identical to or quite similar to ours. A noteworthy observation shared by our research and studies carried out in Egypt, Iran, Pakistan, India, and Saudi Arabia is that most of the answers to the question "Can women donate blood during menstruation?" were inaccurate. The findings of this study indicate that only 61 individuals out of the total number of participants (375 individuals) had donated blood. The findings of this study suggest that the culture of blood donation among young people is significantly low, with only 16% of the individuals in the study having donated blood. This small percentage in a medical community, which should be a role model for others in blood donation, is not satisfactory, and a significant relationship was found between blood donation and gender. Blood donation was found to be higher among males. In a study conducted in India, only 18% of the individuals had donated blood. Another study conducted in Iran found that only 10% of the participants were blood donors. Another study conducted in Pakistan found that 15% of the participants were blood donors. All the studies mentioned in the literature review, conducted in various countries including Spain, Portugal, Ecuador, Brazil, India, Pakistan, Iran, Saudi Arabia, Egypt, and China between the years 2004 and 2022, found that less than 20% of the donors were blood donors, and the number of male donors was higher than female donors. All studies conducted across different countries and years found that the number of male blood donors was higher than female donors. Among the 16% of blood donors, most individuals (98%) cited their motivation for blood donation as helping others, whereas 71% of individuals in the Kashmir, Pakistan study cited their reason for blood donation as their own health (54). In another study in Karachi, Pakistan, participants stated that their motivation was to promote this cause among the public. However, various studies conducted in Zanjan, Zahedan, and Yazd, Iran cited the motivation for blood donation as helping others, similar to our findings. Additionally, a study conducted in Qatar cited the motivation for blood donation as helping patients.

Among the 84% of participants who had not donated blood, 79% stated that the reason for not donating blood was that they were not asked to donate. A study in Pakistan cited the limitation for donation as not having the conditions for blood donation. However, a study conducted in Karachi, Pakistan found that, like in our study, 64% stated that the limitation was the absence of a request for blood donation. Various studies conducted in Zanjan, Zahedan, and Yazd, Iran cited the limitation for blood donation as poor health and lack of conditions for donation. Finally, a study conducted in Qatar found, similar to our study, that the majority cited the absence of a request for blood donation as the main reason. One interesting finding in a study in India was that the majority cited fear of the needle as the reason for not donating blood. These studies reflect varying levels of knowledge and attitudes regarding blood donation. Another cross-sectional study was conducted in Saudi Arabia (2021) among 302 female medical students, aimed at evaluating their knowledge, attitudes, and practices concerning blood donation, only 14.6% of the participants had donated blood, and 74.5% were aware of their blood group. [17].

Limitation

Every research study encounters limitations that can affect its conclusions and potentially hinder overall progress. In our study, certain challenges were faced, including the inattentiveness of some students when providing their answers, which may have impacted the accuracy and reliability of the data. Additionally, there was a lack of internal research related to the topic, limiting the ability to compare or validate the findings against existing local studies. The study was specifically focused on a medical context, which may restrict the generalizability of the results to other fields or broader populations. Furthermore, due to certain constraints, questionnaires from male students were not collected, leading to an incomplete representation of the overall student population [18-20].

Conclusion

This study was conducted to evaluate the knowledge, practice, and performance related to blood transfusion among students at Kabul Medical University. The study involved a total volume of 375 participants, with 49.9% being male and 50.1% female, with an average age of 21 years. The study suggests that the medical has relatively good knowledge and a favorable attitude about voluntary blood donation. However, the prevalence of blood donation among the students is still low, especially among the girls. It is suggested to organize special workshops for medical students and the general public to raise awareness about the importance of blood donation. Among those who donated blood, 96% stated they were motivated by altruism. This reflects a need for ongoing, educational, and motivational activities for encouraging voluntary blood donation by the students. Since many students reported not being asked to donate, promoting a culture of blood donation could be achieved by establishing mobile blood donation teams at universities and providing students with informative guides and materials, which would play a significant role in improving attitudes and performance. Other reasons for not donating blood mentioned to be underweight and anemic as reasons for not donating blood, these nutritional factors also need to be looked into. Regular health checkups along with provision of nutritious meals in college canteens and hostel mess, etc., should be ensured for the students. The study suggested educational interventions at various levels to increase awareness about blood donation.

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