Blood donation awareness and implementation among Undergraduate Medical students of Sindh, Pakistan.

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ABSTRACT:
Objective: To determine the knowledge and practice of blood donation among undergraduate students.
Methodology: This descriptive study was conducted at the Liaquat University of Medical and Health Sciences, Jamshoro Pakistan from September 2021 to December 2021. A convenient sampling technique was applied for collection of sample comprised of undergraduate medical students of all disciplines and batches. All the participants were interviewed by using a validated questionnaire. The analysis was carried out with SPSS 22.0.
Results: Out of 374 respondents, 324 (86.6%) complied with the inclusion criteria. All 324 (86.6%) were non-blood donors; although majority is familiar with necessity of blood donation for the community. Among total population115 (35.5%) had no specific reason as their primary barrier towards blood donation, followed by 96 (29.6%) health-related issues. However, the most common motivation for 156 (48.1%) was approved certifications.
Conclusion: Medical students were revealed to have an excellent primary understanding of blood donation. It is necessary to organize blood donation camps on university campuses and increase help calls.

Keywords: Blood donation; KAP Study; Knowledge; Practice; Undergraduate students.

Introduction:

Blood transfusion is the centre piece of therapy for many serious and common diseases. Blood is the most common tissue donated in the medical field and an accredited element in many lifesaving and rescue situations. Donated blood can save definite numbers of lives in diverse ways when separated into its various constituent's i.e., red blood cells, plasma, thrombocytes. The demand for blood is rising each day as a result of the growing population and advancements in medical science.[1] The need for blood transfusion may be due to sudden loss of blood in an accident or due to disease and surgery.[2,3] People still die in most developing countries, including Ethiopia, because of insufficient blood and its products.[4–6] It is estimated that around 234 million significant surgical procedures necessitating blood transfusions are conducted globally each year.[7] About 1,830 blood donation centres are running in Pakistan, with the majority of them owned and operated by the private sector or non-government organizations (85%).

In Pakistan blood donation mainly depends upon friends, relatives, and paid donors. Young people, especially medical students, form a core group to recruit and retain voluntary donors to ensure safe and sustainable blood transfusions.[8,9]

In Asia, blood donation practices were found to be prevalent in 10 to 35.69% of populations.[10-13] About 89.8% of the female participants in a study conducted in Faisalabad had never donated blood, with only 0.4% of them being regular donors.[14] Certain patients require regular blood transfusion such as patients with thalassemia, sickle cell anaemia, bleeding disorders, and patients who undergo major and prolong surgeries. Several types of research have been published in many cities of Pakistan and other countries as well on this topic but still; there is a lack of such study in LUMHS Jamshoro among undergraduate students.

The study aims to assess the knowledge and practice of blood donation among undergraduate medical students of LUMHS Jamshoro. This study is intended to assess the barriers, for addressing the issue and enhancing awareness accordingly for pros and cons of blood donation.

Methodology:

This descriptive study was conducted at Liaquat University of Medical and Health Sciences Jamshoro Pakistan from September 2021 to December 2021 after ethical approval from the institutional research and ethics committee of Liaquat University of Medical and Health Sciences. It includes undergraduate medical students who never donated blood before, with age group between 18 to 26 years from all disciplines that consist of Bachelor of Medicine and Bachelor of Surgery (MBBS), Bachelor of Dental Surgery (BDS), Doctor of Physiotherapy (DPT), Doctor of Pharmacy (D-pharm), Biomedical Engineering and others. Using the proportion of prevalence of knowledge of blood donation from previous study 42%,[15] margin of error 5% with 95% confidence interval, we have calculated the sample size of 374 using formula n = N*X / (X + N – 1), where, X = Zα/22 ¬*p*(1-p) / MOE2, and Zα/2 is the critical value of the normal distribution at α/2 (as for a confidence level of 95%, α is 0.05 and the critical value is 1.96), n is the sample size, MOE is the margin of error, p is the sample proportion, and N is the population size. Sample size achieved by enrolling students through convenience sampling technique.

Data was collected using a validated structured questionnaire that consisted of four sections. Section one for demographics of participants; age, gender, batch and discipline of study. Sections two, three, and four were designed to evaluate the knowledge, practice, and barriers, and moti-

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vating factors towards blood donation of participants respectively. Questionnaires were distributed via a link after obtaining informed consent. We excluded participants who had donated blood and in the age group other than 18 to 26 years. Data were analysed using SPSS 22.0 version.

Results:

All 374 participants respond the questionnaire, and the response rate was 100%, which was one of the strengths of this survey. Among 374 participants, 325 (86.9%) were non -donors, 44 (11.8%) donors, and 5 (1.3%) chose the "maybe" option when asked about their blood donation history. One of them (0.3%) was beyond the age range of our inclusion criteria. Therefore, data of 324 (86.6%) participants was studied.

Table No 1: Knowledge regarding blood donation.

Knowledge of blood groups	Knowledge of Frequency of blood donation	Knowledge of Blood donation eligibility	Knowledge of blood volume/ donation	Knowledge of Pakistani Government Offers
Yes 316 (97.5%)	Weekly 5 (1.5%)	All Men 4(1.2%)	150-200ml. 51 (15.7%)	Yes 40 (12.3%)
No. 4(1.2%)	Monthly37 (11.4%)	All Women 1(0.3%)	400-450ml. 169 (52.2%)	No 114 (35.2%)
May be 4 (1.2%)	Once /3 months 173 (53.4%)	Young 26(8%)	700-750ml. 4 (1.2%)	No idea 170 (52.5%)
	Once/6 months 60 (18.5%)	Old 0(0%)	1000ml. 8(2.5%)	
	Yearly 14(4.3%)	healthy adult 293 (90.4%)	No idea. 92 (28.4%)	
	No idea 35 (10.8%)	diseased 0(0%)		

Out of 324, 246 (75.9%) were females and 78 (24.1%) were males. Most of the students were in the age group 20 years (n=79, 24.4%) followed by 19 years (n=76, 20.7%). 61 (18.8%) students were in the age of 21 years. About 48 (14.8%) were 22 years old and 30 (9.3%) were 23 years old. Moreover, 29 (8.9%), 6 (1.9%), 3 (0.9%), and 1 (0.3%) were 18 years old, 25 years old, 24 years old, and 26 years old respectively.

The majority of participants 316 (97.5%) have satisfactory knowledge about common blood groups. Approximately 116 individuals, representing 35.8%, accurately understood the risk of infection associated with blood donation, while 173 individuals, or 53.4%, were aware of the frequency with which one can donate blood. In addition, most of them 293 (90.4%) knew correctly regarding the eligibility of blood donors and 169 (52.2%) of participants knew the volume of blood collected during one donation. 1. Additionally, 312 individuals (96.3%) and 299 individuals (92.3%) recognized the necessity of blood during emergencies and were knowing well about blood storage, respectively. Furthermore, 237 individuals (73.2%) demonstrated a clear understanding of the age restrictions associated with blood donation, while 234 individuals (72.2%) acknowledged that individuals of any blood type are eligible to donate. Conversely, a majority of 170 individuals (52.5%) were uncertain about whether the Pakistani government provides incentives for regular blood donors. Furthermore, 236 individuals (72.8%) noted that their parents also support their participation in blood donation. Table 1 presents the questions regarding knowledge and practices related to blood donation, while Likert-scale responses are detailed in table 2.

Table No 2: Responses to Likert-scale type questions about knowledge and practice of blood donation (n=324).

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Can a donor be infected by donating blood?	46 (14.2%)	41 (43.5%)	21 (6.5%)	83 (25.6%)	33 (10.2%)
Is blood required in emergencies?	1 (0.3%)	2 (0.6%)	9 (2.8%)	95 (29.3%)	217 (67%)
Can blood be stored?	2 (0.6%)	10 (3.1%)	13 (4%)	176 (54.3%)	123 (38%)
Is there any age limitation on blood donation?	4 (1.2%)	41 (12.7%)	42 (13%)	173 (53.4%)	64 (19.8%)
Can people with any blood group donate blood?	23 (7.1%)	54 (17.6%)	13 (4%)	120 (37%)	114 (35.2%)
What is your parents view regarding blood donation?	10 (3.1%)	26 (8%)	52 (16%)	179 (55.2%)	57 (17.6%)
Do you feel that blood donation is important for community?	0 (0%)	0 (0%)	4 (1.2%)	139 (42.9%)	181 (55.9%)
Will you donate blood when a relative patient needs it?	4 (1.2%)	15 (4.6%)	22 (6.8%)	173 (53.4%)	110 (34%)
Would you participate and donate blood?	5 (1.5%)	26 (8%)	52 (16%)	160 (49.4%)	81 (25%)

Furthermore, 312 (96.3%) and 299 (92.3%) realize the requirement of blood in emergencies and were aware of blood storage respectively. Besides, 237(73.2%) were well aware of the age limitation of blood donation and 234 (72.2%) of them determine that people with any blood group can donate blood. In contrast, most 170 (52.5%) of them do not know whether the Pakistani government offers for those who donate blood regularly. Moreover, 236 (72.8%) identified that their parents also acknowledge

them for blood donation Table1.Questions for knowledge and practice of blood donation while Likert-scale responses are shown in Table 2.

All participants 324 (100%) were non-donors, but 181 (55.9%) believe that blood donation is important to the community. In addition, most of them 242 (74.7%) have seen news articles and public media about blood donations. However, most 168 (51.9%) of the participants gave a neutral assessment of the blood bank/hospital process, 127 (39.2%) were satisfied and 27 (8.3%) were dissatisfied. Of these, 300 (92.6%) did not receive blood before and 24 (7.5%) did receive blood. Despite being non-donors, 320 (98.9%) reported that blood donation was important to the community, and 283 (87.4%) wanted to donate when their relative patient needed it.

In response to the inquiry regarding the most significant barrier to blood donation, a majority of students, totaling 115 (35.5%), indicated that they had "no specific reason" for not donating. Meanwhile, 96 students (29.6%) expressed concerns that donating blood could potentially lead to health issues for the donor.

When questioned about the most effective measure to enhance motivation for blood donation, 156 students (48.1%) suggested that receiving an official certificate upon completion of the donation could serve as a strong incentive.

Discussion:

The core knowledge of blood donation is crucial in the field of medicine because it will ensure that in cases of emergency, we can make quick arrangements for patients.

This study determined that most of the participants had adequate knowledge about blood donation and the majority of participants 316 (97.5%) had adequate basic knowledge of common blood types. This is because medical students have learned the basics of blood from an intermediate level, and blood units are an integral part of our undergraduate curriculum. Our observation is consistent with a previous study done in India showing good overall knowledge about blood donation (74.4%).[16] This finding is also in line with a study of Saudi adults (71%) in Riyadh.[17] In contrast another study from university students in Saudi Arabia reported that respondents' knowledge was incomplete.[18] Our study also showed that the majority of participants 169 (52.2%) had a good knowledge of the amount of blood collected in a single donation. This result is similar to the results of another study of medical students of India who demonstrated adequate knowledge of the amount of blood obtained in a single donation.[9] The current study participants had a good understanding of blood donor eligibility and age limits, and it appears that a previous study in India determined that participants were well aware of the eligibility criteria of a blood donor.[16-18] In contrast, research conducted in Nepal revealed that the majority of medical students lack sufficient understanding of the criteria necessary for blood donation eligibility.[19] These contrasting results can be attributed to the fact that the blood module is a fundamental component of our university's curriculum, enabling students to acquire a solid understanding of the principles of blood donation.

Our investigation indicates that the primary means of increasing awareness regarding blood donation among participants was through mass media, awareness seminars, and news articles. This conclusion is supported by the presence of various student-led societies and organizations at the university that frequently conduct awareness seminars. In a similar vein, a study conducted in India revealed that a considerable proportion of respondents became aware of blood donation through mass media.[10] Furthermore, another study corroborated these findings.[20]

The current research indicates that the majority of respondents' parents recognize their involvement in blood donation. This recognition stems from initiatives led by student and medical organizations, which conduct numerous blood donation camps and awareness seminars at affiliated hospitals and throughout the city, emphasizing the significance and necessity of blood donation to parents. In contrast, other studies have identified parental disapproval and apprehension as significant obstacles to blood donation.[11]

Although the participants in our study were not blood donors, a considerable portion expressed the belief that blood donation holds significant importance for the community. This perception can largely be attributed to the frequent awareness seminars conducted for students and the blood donation camps organized by young physicians in associated hospitals. Similar findings were reported in another study.[20]

Another promising finding of current study is that if a university hosts a blood donation camp on campus, most participants will be happy to donate blood. The rationale for this finding might be a fact that university operations ensure proper student safety and hygiene measures, making students more comfortable and convenient on campus for blood donation. This is consistent with a published study that yielded similar results, with a significant number of respondents express desire for blood donations when a blood donation camp organize on campus.[18]

We observed that a substantial number of participants express willingness to donate blood when a relative patient needed it. This willingness may be attributed to direct access and approach to patients who need blood in an emergency and also to those who consider it necessary part of their treatment protocol. The same finding was observed in an another study.[10] Another published study also reported significant willingness.[11] Studies conducted in the USA also revealed noticeable willingness towards blood donation in times of need.[21]

During current study, most 168 (51.9%) of the participants reported neutral opinion about the blood bank/hospital procedures. A study from Nepal stated that 14.58% of non-donor participants were concerned about sanitation and contracting infectious diseases.[19] Other studies have also shown that the risk of infection is the main reason why non-donors hesitate to donate blood.[22]

As medical students and routine clinical exposures, they have become aware of the health risks posed by blood donations. We can overcome this difference by properly explaining the procedure and ensuring that proper hygiene and safety measures are in place while donating blood.

Our research indicates that the primary obstacle to blood donation was the absence of a specific reason. This contrasts with other studies where only a minor percentage of participants cited a lack of specific reasons as a barrier to blood donation. Approximately 29.6% of respondents identified health-related issues as obstacles. Notably, these results align with a study conducted among Indian health science students, which revealed that most participants perceived themselves as medically unfit to donate blood.[15]

Additionally, 84 individuals, representing 25.9%, stated that they were not approached to make a blood donation. Another study supports the same results.[18] In contrast to other studies in which no one asked me to donate was the minor reason for not donating blood,[15] We need to take the initiatives to spread words among willing students to ask them to come forward for donating blood.

One distinctive finding of current study that the major motivating factors towards blood donation may be an official approved certificate. This finding is line with published research.[20] Contrary to our research findings, other studies identified the primary motivation for blood donation as the absence of a specific reason.[19]

Conclusion:

Blood donation is a noble act that can save lives. Medical students are potential donors and can significantly contribute to maintaining an adequate blood supply. It is essential to organize blood donation drives on university campuses regularly, blood donor will serve as a motivational factor for other students.

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