

Original Article

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## Knowledge attitude ratio of blood donation among medical and non-medical university students

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### Abstract

**Background:** Due to lack of active blood donation, Pakistan fails to meet the basic medical requirements. That's why, to increase the medical facilities and to motivate a sense of humanity, this practice is mandatory. Rigorous aimed advertising and information; ulterior motive and privilege of unpaid healthy volunteer donors for blood are needed for a satisfactory and safe blood and blood components.

**Methodology:** This was a cross-sectional comparative study between medical and non-medical universities. A total of 150 students were recruited. A self-administered questionnaire was used which comprised of 14 questions including demographics (gender, marital status, university, year of study and blood group) and blood donation questions related to knowledge, attitudes, and practices. The data was analyzed using statistical package for social software (SPSS) version 16. The Statistical test applied was Chi-square Pearson's test where appropriate P-value <0.05 was considered significant.

**Results:** Out of 150 participants 17(11.26%) were donors and 113(88.08%) were those who didn't participate in blood donation. Where else, the donors 12 (71 %) belonged to Medical and 5 (29%) from Non-medical, indicating that students with poor knowledge donate the least. Only 53 (43.70%) have some knowledge related to blood donation. Insufficient concept and different fears (needle injury, transmission of blood-borne diseases etc.) were the principal factors discouraging them from donating. The attitude towards blood donation was positive for both groups (Medical and Non-Medical) i.e. (49.95%). But despite this percentage, both groups i.e. (Medical and Non-Medical) showed no willingness towards donating blood.

**Conclusion:** The result of this study conclude that the objective of voluntary blood donation could be more effective if specific donor's personal information and educational background is obtained, motivation and recruitment strategies must be focused. Administrative donation camps periodically in high-schools would invigorate more students (those having trouble with time and information).

### Keywords

Knowledge, Attitude, Medical Students, Non-Medical Students, Ratio, Blood Donation

### Introduction

Blood donation can guard millions of lives, and the youth are the hope and fortune of a safe blood supply on the globe<sup>1</sup>. Millions of blood units are collected from donors per year<sup>2</sup>. Transfusion of blood is an elementary and a vital part of health care system for one's lifesaving intrusion<sup>3</sup>. There is no substitution of essential elements in human body<sup>4</sup>. But unfortunately, services of blood are interfacing deficiency of blood all over the earth. Requisition of blood is increasing little by little, and today the requirements are insufficient for donating the

blood<sup>5</sup>. More than half of the million women die from complications related to pregnancy and childbirth. 25% of the complications due to hemorrhaging (blood loss), which is most commonly seen in maternal death. In addition, the most severe diseases due to malnutrition are anemia and thalassemia which prevails in children. Up to 70% of donated blood transfused in thalassemia patient, which is in the ratio of one in ten of all childhood deaths in Pakistan<sup>6</sup>. Hence, victims of road traffic accidents and trauma, cancer patients and those undergoing major scheduled surgeries,

civil conflicts, and military wars. Donated blood can save their life's<sup>7</sup>. Thus, accessibility of blood is an important responsibility in the community. Collecting blood from voluntary, non-remunerated blood donors from risk-free populations is principle measure for securing the availability and safety of blood transfusion. The need of blood continues to grow globally as health systems become more developed, with improved diagnostic and treatment options and sophisticated medical and surgical procedures requiring transfusion compounded by population growth and changing demographics, with aging populations requiring more medical care.

Each year, millions of lives are saved by a transfusion of blood but yet the caliber and safety of transfusion is still a lapse in many countries<sup>8</sup>. The reason behind this includes unhygienic laboratories, unsafe donors, poor laboratory procedure and insufficient testing of blood. Each year many people rely on the willingness of another person to donate the blood. Yet, it has been seen worldwide, donors are less to serve but demands of blood are getting higher. Teenagers can be a good approach for the source of speedily accessible, quality blood if they are enthusiastic and are willing to be a part of voluntary blood donation. It should be the aim of designing and making an efficient strategy for preserving a safe and adequate blood supply while accelerating the development of positive attitude and enhancing the level of knowledge towards blood donation in the community. The active and concerned people are the prospective blood donors with whom the increasing blood requirements of the country can be met<sup>9</sup>. Students are nutritious, energetic, dynamic and are easily approachable, constitute a greater distribution of the population. They should be encouraged and strengthen to donate blood eagerly considering the consequence and significance of student community in voluntary blood donation. This study has been executed to spread knowledge, attitude, and ratio about blood donation among medical and non-medical students<sup>10</sup>. WHO member states agreed on a resolution on the feasibility, safety, and quality of blood components in May 2010. The resolution

offers a way to expand access to safe and affordable blood transfusion components in many countries. This was to achieve 100% voluntary non-remunerated blood donation by 2020, this was released on World Blood Donor day 2009 in Melbourne, Australia<sup>11</sup>. Every year world blood donor day celebrated on 14th June, to focus the awareness about the blood donation and to raise the number of voluntary, unpaid donors around the globe. Unfortunately, the blood donation sector in Pakistan is very weak (being a low-income country) and whenever there is a need of donation due to uncertain incidents/ attacks, the blood banks are usually unable to meet these requirements<sup>12</sup>.

The recent blood banking system in Pakistan is plotted to charge both as "instantly and substitution" donation system<sup>13</sup>. The family has to arrange a donor if their patient needs blood. In spite of matching the blood group between the donor and the recipient, the blood bank accepts the blood. If the donor's blood is compatible with recipient's blood then it transfused immediately. But if the donor's blood is irreconcilable, then it is replaced with an appropriate blood unit<sup>13</sup>. Nowadays, there is a big contribution of relatives and family of friends of the patient in donating blood. But sometimes, they hide their diseases or donate blood under pressure. Besides, voluntary blood donors have no reason to give incorrect information that might increase the risk of transmitting infectious diseases. Therefore, to initiate voluntary blood donation system it is also necessary to demoralize professional or commercial blood donation system which certainly meets 13% of total essential of blood in Pakistan.

Where else, remunerated donors are more likely to donate as compared to non-remunerated donors in chronology in which high-risk infectious donations escape detection by blood screening tests. And it has been proved beyond any uncertainty that donations are more likely given in that period of time where it leads to high risk in recipient's blood components<sup>14</sup>. Approximately 4.5 million Americans would lose their lives per year with no life-saving blood transfusion<sup>15</sup>. In growing countries like Pakistan

where total number of blood center is 1830, in which more than 1.5 million blood bags are needed in each year for transfusion, but sadly the rate of donation is very poor around less than 1% which is a big drawback in such countries where diseases like anemia and thalassemia are highly prevalent<sup>16</sup>.

The study published in Lancet was carried out by Cambridge and Oxford universities and National Institute for health research and NHS blood and transplant proved that currently, in the United Kingdom, men are allowed to donate blood after every 12 weeks whereas women are allowed to donate after every 16 weeks. It demonstrates that shortening the interval of blood donation is an effective approach for services of blood<sup>17</sup>. Hence, there is corroboration that donating blood is secure and can be a good impact on the recipient, donor, and the whole population as well as to the blood transfusion services. It has also been established that voluntary blood donation aid the donor medically as it lessen insulin resistance thus ameliorate the glucose balance in the body<sup>18</sup>.

### Methodology

This cross-sectional study was performed between February to June 2016. The study population comprised of undergraduate students from medical and non-medical universities of Karachi, Sindh. The study participants were non-remunerated and nonspecific. Self-administered structured opinion survey on attitude, practice, and knowledge was intended in accordance with the study objectives. The questionnaire consists of 14 questions regarding perception of blood donation. Total 150 participants were enrolled in the study. Data were analyzed using SPSS version 16.0. Pearson's Chi-squared test was used to check for the association, where  $P < 0.05$  was considered statistically significant. Statistics were analyzed under following subheadings. The first constituent of the questionnaire that determined the basic knowledge level affected to general desideratum for a donation of blood, the capacity of blood received, the

prevalence of blood donation and eligibility to donate blood. The second part evaluated about the attitude and participant's responses were analyzed as a percentage. The questionnaire was examined in ten college-going students as a pilot pretest testimonial among students.

### Results

Comprised of 14 based questionnaire, data were collected from 150 participants in which 17(11.26%) were those who participated and 113(88.08%) were those who didn't participate in donating blood. Only 43.70% students had knowledge regarding donating blood and the entire blood donation process. On the other hand, 24.50% students knew less about the blood donation entire process. The test was analyzed on Pearson's Chi-squared where the value of  $P < 0.05$  was considered statistically significant. Besides, the attitude towards both groups (Medical and Non-Medical) i.e. 49.95%. In spite of having this percentage, both groups showed no willingness towards donating blood. Thus we (Author's observation) noticed that our respondents have less awareness about the diseases that can be transmitted by blood transfusion.

Majority of students from medical field know about the capacity of blood drawn at every donation where the rate is (86.5%) as compared to the non-medical field where the students have decreased grasp over the knowledge of blood donation (13.5%) as shown in figure 1. Regarding the normal value of hemoglobin to donate blood the majority from medical students knew the normal applicable range (61.6%) on the other hand the non-medical students were unable to provide any information regarding this (38.9%).

Similarly, about (65.6%) medical students knew about normal blood pressure at the time of donation but (34.4%) students didn't know about the normal blood pressure.

**Table 1: Students knowledge regarding blood donation**

Knowledge	Medical Students (%)	Non-Medical Students (%)
Minimum weight for blood donation	63	37
Minimum gap between two blood donations	59.4	40.6
Blood volume was taken at every donation	86.5	13.5
Normal Hb value to donate blood	61.6	38.9
Normal blood pressure to donate blood	65.6	34.4
The time required for blood donation process	63.2	36.8
Overall% of knowledge	66.5	33.5

The table 1 clearly shows that the allied health students are more knowledgeable with 66.5% as compared to the non-medical students with 33.5%. Table 2(a), shows that there is a positive and a negative response regarding attitude, which is divided among medical students. Medical students showed a positive response that is 46.7% agreed that donating blood can cure chronic disease. Where else about 55% medical students gave negative response towards donation. The positive attitudes have been seen in 50.4% medical students that blood donation actually purified blood whereas 48.6% showed a negative attitude towards it. 51.3% of the medical students established that donating blood to the donor is healthy besides 45.9% denied to it.

**Table 2(a): Medical Students attitude towards blood donation**

	Positive (%)	Negative (%)
Blood purification	50.4	48.6
Prevention of chronic diseases	46.7	55
Harmless for donor	51.3	45.9
Food/Fluid intake prior to blood donation	55.6	44.9
Drug consumption after donation	48.1	54.3
Overall% of attitude	50.4	49.7

In table 2(a), the overall % of positive attitude is (50.4%) and negative attitude is (49.7%) in medical students. Table 2(b), shows that there is a positive and a negative response regarding attitude, which is divided among non-medical students. In non-medical students, about 49.6% showed a positive response that blood donation helps in purification, while 51.4% showed a negative attitude towards the fact. About 53.3% agreed that donating blood can prevent chronic diseases, while 45% denied besides showing negative attitude. 48.7% of the non-medical students showed the positive attitude that donating blood is beneficial to donor where about 54.1% showed a negative attitude towards of it.

**Table 2(b): Non-Medical Students attitude towards blood donation**

	Positive (%)	Negative (%)
Blood purification	49.6	51.4
Prevention of chronic diseases	53.3	45
Harmless for donor	48.7	54.1
Food/Fluid intake prior to blood donation	44.4	55.1
Drug consumption after donation	51.9	45.7
Overall% of attitude	49.5	50.2

In table 2(b), non-medical students clearly showed their positive attitude with (49.5%) and negative attitude with (50.2%) towards blood donation. Thus, the study revealed that with the total of 49.95%, which is

calculated from positive responses of both groups which are 50.4% and 49.5% were in favor of blood donation as shown in figure 2a & 2b. But the overall % of attitude from any group (either taking from medical or non-medical) has clearly shown that half of the respondents had positive attitude whereas the other half of them had a negative attitude towards donating blood. Hence, it shows that the attitude from both tables is quite mutual i.e. neutral.

## Discussion

Each day, a number of people of all age groups around the globe need blood transfusions to survive. This study conveyed that there is ample basic knowledge about blood donation even among in medical students<sup>19</sup>. Where medical students participated more potentially and enthusiastically for blood transfusion services. But unfortunately, due to lack of opportunity, they never get a chance to donate blood, which clearly showed that some sufficient steps have to be taken for participating students to donate blood as much as they can. By boosting voluntary blood donations that can be only ensured by feasibility and increasing demand for purified blood in our country. Role of teenagers in voluntary blood donation is crucial to meet the demand for safe blood. Moreover, youngsters having a better coordination on health care requirements of our country should come to the forefront. Hence, by means of various factors bestowing to attitude, knowledge, and practice of blood donation among allied health students is mandatory.

A study escorted by Saudi Arabia which substantiates that knowledge about blood donation in allied health students is pretty higher as compared to non-medical university students<sup>20</sup>. Besides, on average 35.10% have the awareness about appropriate body weight, level of hemoglobin, blood pressure and other vital signs, out of which 92% are medical students<sup>21</sup>. On the contrary to table-1, Studies assessing students' perception and enactment about donating blood has promulgated that knowledge is usually partial, university students do not donate more than general population and knowledge does not correlate with the practice of blood donation<sup>22</sup>.

Whereas comparing attitude among participants in table-2, a study conducted in India among medical students revealed that 62.6% bears positive attitude towards blood donation<sup>23</sup>, which is greater than that is in this study. The consequence regarding the attitude of students showed commendatory conclusion which seems in comparison to the study which was dispatched in Yazd, that they had better attitude<sup>24</sup>. A study assisted in North India showing the reasons for not donating blood was; fear of being unfit, needles, having no knowledge and no opportunity. Among these, fear of needle is the major reason given by the majority of the participants (27.4%) for not donating blood<sup>25</sup>. Similarly, it was also found in China that is about 44% were not donating blood for the same excuse i.e. due to fear of needle<sup>26</sup>.

To meet the blood requirements in a critical situation, medical students are still the major hope. Hence, organizing transportation to donation venue and ID cards/certificates of blood donors should be contemplated as secure and effective ways to attract and retain donors. To promote voluntary blood donation especially in summers to encourage blood donors while locating nearest blood donation center, displaying live bloodstock and even the involvement of electronic media in displaying information of blood donors. The basic goal is to promote campaigns of donating blood and to give free seminars on awareness about how a blood can save one's life and convey clear and simple messages to educate and dissipate myths associated with a donation should be disseminated<sup>27</sup>.

The non-donor having positive attitude should be more encouraged to organize awareness programs to promote blood donation on a voluntary basis while those non-donors who are having negative attitude are immensely needed to be more educated

about importance and health benefits about blood donation. The importance of donation indicates that proper awareness about donating blood and even information on safe blood requirements are not percolated among healthcare students. By organizing awareness and motivational programs in campuses among students on donating blood can bring a lot of positivity in voluntary blood donation.

### Conclusion

The conclusion of the study showed that there lies an ocean of difference between the attitude towards voluntary blood donation and that of real-life practice among university students. An aspect of knowledge about donating blood is not satisfactory among the case-population. However, their attitudes are generally satisfactory. Showing higher knowledge on a scale level of blood donation having a positive attitude towards blood donation are more likely to donate the blood frequently. Where else, enough comprehension cannot result in donation practice, building a positive attitude and encouraging factors must be highlighted. It sums up that there should be an urgent need to build up and strengthen programs for raising enthusiasm, registered and retention of voluntary blood donors.

### Conflicts of interests

None.

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