





Research Article

Assessing Blood Donors' Knowledge, Attitudes, and Practices Regarding Blood Donation - A Cross-Sectional Study

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Abstract

Introduction: Blood donation is vital for saving lives in critical medical conditions, making it a global concern. Ensuring a stable blood supply is essential for emergency treatments, surgeries, and chronic disease therapies. Blood donors, including influential figures like imams, play a critical role in promoting and normalizing blood donation within communities. **Aim of the study:** The aim of this study was to assess the knowledge, attitude and practices of blood donors toward blood donation. **Methods:** This cross-sectional study at Imam Training Academy of the Islamic Foundation, Bangladesh, included 200 Imams aged 18 above. Conducted from February 2023 to January 2024, data on knowledge, attitudes, and practices were collected through face-to-face interviews using a semi-structured questionnaire. Statistical analysis was performed with SPSS Version 26, considering a P-value of <0.05 as significant. Ethical clearance was obtained from the local ethical committee. **Result:** The study findings indicate that the majority (61.5%) of participants were aged between 20-29 years, with 19.5% aged 30-39 years. Awareness about blood donation was moderate, with 45% aware of their blood group and Rh factor. Most participants (83.5%) understood that receiving infected blood can transmit diseases, and 65% correctly identified the interval for safe blood donation. Knowledge of local blood transfusion centers beyond BSMMU was low at 36%. Attitudes toward blood donation were overwhelmingly positive, with high agreement that donation saves lives (96.5%) and is a moral activity (97.5%). The preference for voluntary non-remunerated donation was unanimous (98%). However, only 35% of respondents had donated blood at least once, with 33.5% donating voluntarily. **Conclusion:** The study found that blood donors had good knowledge and a positive attitude toward blood donation. However, most individuals were not donating blood regularly as volunteers.

Keywords

Knowledge, Attitude, Practices, Blood Donors and Blood Donation

1. Introduction

Blood is vital for sustaining life and is one of the most invaluable contributions a person can make. Around the world, blood services are struggling with a significant shortage of

donated blood. The demand for blood is increasing daily, but the current level of blood donations is not sufficient to meet this growing need. [1] The country relies heavily on blood

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donors for its survival, as their generosity and selflessness ensure a long-lasting blood supply. In systems dependent on donations from friends and family, the therapeutic demand for blood is rarely met. Additionally, the practice of paid "donations" presents problems, affecting both the donors and the recipients. [2] When a patient loses blood due to an accident, surgery, or any other medical condition affecting blood or its components, blood transfusions can be life-saving. Through collaboration, medical professionals and blood banks ensure that these transfusions are safe and free of risks. [3] Globally, more than 234 million major procedures requiring blood transfusions are performed annually. Additionally, car accidents result in approximately 1.2 million deaths and leave another 30 million people injured or disabled each year. Without a blood transfusion within the first 24 hours of treatment, 90% of these patients will not survive. Annually, around 88 million units of blood are collected from donors worldwide. However, only 20% of the global safe blood supply, estimated to be 150 million units, comes from developing nations, where 80% of the world's population resides. [4] More blood means more life, as emphasized by World Blood Donor Day. According to the World Health Organization (WHO), approximately 93 million people from 173 countries donate blood annually. [5] With a population of 165 million inhabitants, Bangladesh stands as the eighth-most populous nation in the world. [6] However, Bangladesh ranks 88th globally in terms of traffic accidents and has a high maternal mortality rate (MMR) of 121 deaths per 100,000 live births. [7, 8] Bangladesh has a continuous daily need for all blood types, with the highest demand being for A-negative (A-), B-negative (B-), and O-negative (O-) blood types. [9] In 2016, Bangladesh collected approximately 600,000 units of blood, falling short of the anticipated 800,000 units needed. The country's 319 blood transfusion centers, serving both public and commercial sectors, sourced only 31% of their blood supply from voluntary donors. This contrasts sharply with several Southeast Asian nations like Sri Lanka, India, and Thailand, where up to 95% of blood donations come from voluntary sources. [10] To guarantee blood donation knowledge, attitudes, and practice, a representative sample of 17 rising nations—defined by the "International Monetary Fund"—was employed. The studies' primary findings were the need for more precise information on blood donation, the prevalence of the practice of selling blood and blood products, the absence of attitudes that encourage blood donation, and the anxiety that blood donors experience while giving blood. [11] In developing countries, approximately 60% of the population has adequate knowledge about blood donation. However, the rate of actual blood donation remains lower compared to middle and high-income countries. [12, 13] Age, education level, sex, profession, monthly income, exposure to streaming media, and religious affiliation were identified as the most commonly cited independent predictors influencing knowledge, attitudes, and practices (KAP) related to blood donation. [14-17]

KAP of blood donors, especially those in influential positions like imams, play a critical role in promoting blood donation within communities. Ensuring that imams are well-informed about the importance of blood donation, its benefits, and the processes involved can help them educate their congregations effectively. Imams with positive attitudes towards blood donation can inspire similar sentiments among community members. A positive outlook and proactive encouragement can break down misconceptions and fears associated with blood donation. [18] When imams actively participate in blood donation, they set a powerful example for others to follow. Their involvement can normalize the practice and encourage more people to donate blood regularly. [19] Regular blood donation ensures a stable blood supply, addressing immediate medical needs and fostering a culture of continuous donation. This practice can significantly improve public health outcomes by providing critical resources for surgeries, emergencies, and chronic conditions. [20] The aim of the study was to assess blood donors' knowledge, attitudes, and practices toward blood donation.

2. Objectives

The objective of this study was to assess the knowledge, attitude and practices of blood donors toward blood donation.

3. Methodology & Materials

This cross-sectional study aimed to assess the knowledge, attitudes, and practices (KAP) regarding blood donation among imams. The primary participants were imams, and the study was conducted at the Imam Training Academy of the Islamic Foundation in Agargaon, Bangladesh, from February 2023 to January 2024.

A total of 200 imams aged 18 years above who donated blood were included in the study. A standardized semi-structured data collection sheet and face-to-face interview were used to collect necessary information. The tool was administered to blood donors and paper pencil technique was used for data collection. A semi-structured questionnaire was developed in Bengali and English. The questionnaire was developed using the selected variables according to the specific objectives. The questionnaire contained questions related to the knowledge, attitude and practice regarding blood donation. Data were checked immediately after completing the interview and review of the necessary investigation. All relevant data were collected from each respondent using an interview schedule and investigations in a predesigned format. Participants were given full autonomy to participate in the study and informed written consent was obtained.

Statistical Analysis: All data were recorded systematically in preformed data collection form and quantitative data was expressed as mean and standard deviation and qualitative data was expressed as frequency distribution and percentage. Sta-

tistical analysis was carried out by using Statistical analysis was done by using SPSS (Statistical Package for Social Science) Version 26 for windows 10. P value <0.05 was considered as statistically significant. Ethical clearance was obtained from the local ethical committee to perform the investigation and study.

4. Result

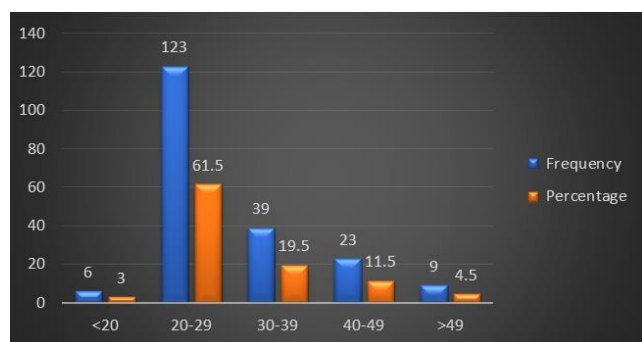


Figure 1. Age distribution of the respondents.

Figure 1 shows that majority (61.5%) of our patients were aged 20-29 years old, followed by 19.5% aged 30-39 years old. Among all participants 11.5%, 4.5% & 3% were aged between 40-49 years, >49-42 years & <20 years old respectively. The mean age was 30.34 ± 9.83 years.

Table 1 shows that sociodemographic profile of the respondents. A majority of the participants are married (63%), while 37% are unmarried. Educational attainment varies, with the largest proportion having completed Higher Secondary Certificate (HSC) education (32.5%), followed by graduates (20%), and those with secondary education (SSC) at 19%. A smaller segment has post-graduate degrees (17%) or only

primary education (7.5%), and a few participants are uncertain about their educational level (4%). In terms of occupation, the majority are employed in service jobs (58%), with students making up 24.5%, and smaller groups engaged in business (2.5%), daily labor (2%), or other occupations (6%), while a very small fraction are housewives (0.5%).

Table 1. Distribution of study subjects on the basis of their socio-demographic profile.

Socio-demographic Characteristics		Frequency	Percentage
Age	30.34 \pm 9.83		
Marital status	Married	126	63
	Unmarried	74	37
Education	Primary	15	7.5
	SSC	38	19
	HSC	65	32.5
	Graduate	40	20
	Post Graduate	34	17
	Don't know	8	4
	Housewife	1	0.5
Occupation	Service	116	58
	Student	49	24.5
	Daily labor	4	2
	Business	5	2.5
	Other	12	6

Table 2. Item wise distribution of response of subjects regarding knowledge of blood donation.

Items		Frequency	Percentage
Are you aware of your blood group and Rh-factor?	yes	90	45
	no	20	10
	don't know	90	45
Can be a person acquired diseases by receiving infected blood	yes	167	83.5
	no	22	11
	don't know	11	5.5
How often blood can be safely donated by a person?	after 3 months	50	25
	after 4 months	130	65
	after 6 months	20	10
Which age group can donate blood?	18-50	157	78.5

Items		Frequency	Percentage
	20-60	43	21.5
Are you aware about location of other local blood transfusion centers apart from BSMMU?	Yes	72	36
	No	128	64
Which investigations are done before donating blood?	blood group test	77	38.5
	hemoglobin	28	14
	virus	15	7.5
	fever, cough	5	2.5
	if there is any infection in the blood	50	25
	no idea	25	12.5
	voluntary donor	178	89
Best source of donor blood?	relative donor	15	7.5
	don't know	7	3.5

Table 2 shows that the awareness and knowledge regarding blood donation among the sample population. Only 45% of participants are aware of their blood group and Rh factor, while another 45% are unaware, and 10% do not know. A majority (83.5%) understand that receiving infected blood can transmit diseases, while 11% believe it cannot, and 5.5% are unsure. Most participants (65%) correctly identify that blood can be safely donated every four months, while 25% think it can be donated every three months, and 10% believe every six months. Regarding age eligibility for blood donation, 78.5% correctly state that individuals aged 18-40 can donate,

whereas 21.5% think the range is 20-60. Awareness of local blood transfusion centers beyond BSMMU is low, with only 36% knowing other locations. In terms of pre-donation investigations, 38.5% are aware that a blood group test is done, 14% mention hemoglobin tests, 7.5% note virus tests, 2.5% mention checks for fever and cough, 25% are aware that infections are checked, and 12.5% have no idea. The best source of donor blood is recognized by 89% of participants as voluntary donors, while 7.5% believe it is from relative donors, and 3.5% do not know.

Table 3. Item wise distribution of response of subjects regarding attitude toward blood donation for positive items.

Items	Strongly agree	Uncertain	Disagree	Strongly disagree
Do you think blood donation saves life?	193 (96.5)	2 (1)	1 (0.5)	4 (2)
Do you think blood donation is a moral activity?	195 (97.5)	4 (2)	1 (0.5)	0
Do you think young people should frequently donate blood rather than old people?	188 (94)	7 (3.5)	5 (2.5)	0
Do you think people having more knowledge on blood donation donate more often?	182 (91)	7 (3.5)	7 (3.5)	4 (2)
Do you think the best way to donate blood is voluntary non remunerated?	196 (98)	3 (1.5)	1 (0.5)	0
Do you think every person should always disclose correct information about his/her health before donating blood?	198 (99)	1 (0.5)	1 (0.5)	0

Table 3 shows that attitude toward blood donation for positive items. Nearly all respondents believe that blood donation saves lives (96.5% strongly agree), considering it a moral ac-

tivity (97.5% strongly agree). There is also strong agreement that younger individuals should donate blood more frequently than older individuals (94% strongly agree). Furthermore, a

majority agrees that increased knowledge about blood donation correlates with higher donation rates (91% strongly agree). The preference for voluntary non-remunerated donation is unanimous among respondents (98% strongly agree), reflecting a commitment to altruism in blood donation practices. Addi-

tionally, there is near-unanimous consensus (99%) that every donor should disclose accurate health information before donating blood, emphasizing transparency and safety in donation processes.

Table 4. Item wise distribution of responses of study subjects regarding their attitude toward blood donation for negative items.

Items	Strongly agree	Uncertain	Disagree	Strongly disagree
Do you think the best way to donate blood is at the request of relatives?	34 (17)	10 (5)	136 (68)	20 (10)
Do you think the best way to donate blood is paid donation?	48 (24)	7 (3.5)	118 (59)	27 (13.5)
Do you think people who donate blood should receive something in exchange?	33 (16.5)	7 (3.5)	143 (71.5)	17 (8.5)
Do you think people who donate blood can contract disease?	45 (22.5)	11 (5.5)	126 (63)	18 (9)
Do you think people who donate blood are temporarily weakened?	42 (21)	14 (7)	101 (50.5)	43 (21.5)
Do you donate blood to get free investigations?	54 (27)	9 (4.5)	114 (57)	23 (11.5)

Table 4 shows item-wise distribution of responses of study subjects regarding their attitude toward blood donation for negative items. A majority (68%) disagrees that donating blood at the request of relatives is the best approach, suggesting a preference for autonomous donation decisions. Similarly, there is widespread skepticism (59%) towards the idea of paid donation as the best method, with only 24% strongly agreeing. Most respondents (71.5%) oppose the notion that donors should receive something in exchange for their blood, emphasizing altruism over incentives. Concerns

about health risks are evident, as a notable portion (63%) believe that donating blood can lead to contracting diseases, despite established safety protocols. Additionally, there is divided opinion regarding the physical impact of donation, with 50.5% disagreeing that donors are temporarily weakened, while 21.5% strongly disagree with this notion. Lastly, a significant number (57%) do not support the idea that individuals donate blood to receive free medical investigations, highlighting a perception that altruism rather than personal gain should drive blood donation efforts.

Table 5. Distribution of blood donors according to their practice toward blood donation.

Practice related blood donation	Frequency	Percentage
Have you ever donated blood?	yes	70
	no	35
	don't know	42.5
When was the last time you donated blood?	<6 months	22.5
	6-12 months	13.5
	>12 months	9
How did you feel after donating blood?	positive feeling	18
	indifferent	25
	replacement	32.5
Reason for Donation	voluntary	5
		2.5
		1.5
		33.5

Table 5 shows blood donors according to their practice toward blood donation. The respondents, 35% have donated blood at least once, while 42.5% have not and 22.5% are unsure if they have donated. Among those who have donated, the frequency varies: 13.5% donated within the last six months, 9% donated 6-12 months ago, and 12.5% donated more than 12 months ago. After donating, a significant majority (32.5%) reported feeling positively about the experience, while 2.5% felt indifferent. In terms of motivation, 33.5% donated voluntarily, highlighting altruistic reasons, whereas only 1.5% donated for replacement purposes.

5. Discussion

The modern medical facilities has coincided with a significant rise in the demand for blood and its derivatives. To address this challenge, hospital blood banks have two primary strategies: first, implementing policies to ensure the judicious use of blood, and second, enhancing efforts to recruit blood donors. Decision-making processes related to blood donation have been extensively studied globally over decades to optimize donation efficiency. [20-25] However, these studies may not fully reflect the cultural context of Bangladesh. Therefore, there is a need for investigations specifically tailored to assess the knowledge, attitudes, and practices of the Bangladeshi population regarding blood donation. Related to the knowledge of blood donors in present study most respondents, both donors and non-donors, believed that blood donation is limited to individuals aged between 18-50 years. However, it is important to clarify that 17-60 years old are eligible to donate blood. [26] The study found a significant association between respondents' good KAP regarding blood donation and factors such as younger age and higher educational degree. These findings align with a study conducted by Shenga N et al. Similarly, Mousavi et al. found that the level of knowledge about blood donation was associated with education. [27, 28] In contrast, Wiwanitkit et al. reported no such association with educational level. [29] However, the rate of donation is higher among subjects between 30-45 years old which was contrast to our results collected through studies on Saudi population. [30] The present study, we found 89% of participants as voluntary donors, while 7.5% believe it is from relative donors. This observation aligns with findings from previous studies highlighting a lower proportion of voluntary blood donors in developing countries compared to more developed nations. [31] For instance, a study conducted in the Kingdom of Saudi Arabia (KSA) reported that 14.8% of blood donors were voluntary, while 48.7% were replacement donors and 36.5% were statutory donors. [32] We also found, previous studies by Wiwanitkit et al. Mousavi et al. Shenga N et al. and Sabu et al. [27-29, 33] In the current study, all participants expressed willingness to donate blood in the future. In contrast, a study conducted by Dubey et al. found that 57.3% of participants would donate only if there was a need within their family or among friends, and surprisingly, 13.3% stated they

would never donate blood in their lifetime. [34] In the present study, we observed a positive attitude toward blood donation, with 96.5% of participants believing that blood donation saves lives. Additionally, 97.5% strongly agreed that blood donation is a moral activity. Similar findings were reported by Abdel et al. where 99% of respondents from Saudi Arabia displayed a positive attitude toward blood donation and its importance in patient care. [35] Hossain et al. and Okpara et al. also found high levels of positive attitude among participants from Dhaka, Bangladesh (82%) and Nigeria (79.7%), respectively. [25, 36] The WHO 2008 report further documented that low- and middle-income countries primarily depend on family or replacement donors for blood donation. [37]

6. Limitations of the Study

In our study, there was small sample size. The study was conducted at a short period of time. A cross-sectional study cannot establish cause-effect relationships between variables, and there may be social desirability bias in participant responses.

7. Conclusion and Recommendations

We can conclude that although blood donors demonstrated good knowledge and a positive attitude toward blood donation, many of them were donating blood only when specifically asked to do so, rather than on a regular basis. This indicates that while the foundational understanding and willingness are present, there is still a significant gap in habitual, voluntary blood donation. To bridge this gap, it is crucial to implement strategies that motivate and encourage individuals to donate blood more frequently and voluntarily. This could involve increased public awareness campaigns, educational programs, and incentives for regular donors. Achieving a higher rate of voluntary and regular blood donation is essential to ensure a stable and sufficient blood supply, ultimately helping to meet the WHO goal of 100% voluntary blood donation, which was targeted for 2020.

Abbreviations

KAP	Knowledge, Attitudes, and Practices
WHO	World Health Organization
KSA	Kingdom of Saudi Arabia

Author Contributions

Fatema Easmin: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

Ayesha Khatun: Conceptualization, Data curation, For-

mal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

Subarna Saha: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

khan Anisul Islam: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

Firoza Begum: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

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