

Article

Perceptions of blood donation among the students of Jahangirnagar University, Bangladesh

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Abstract: Each year, millions of lives are saved through blood transfusion. Most of the youngsters are the potential voluntary and replacement blood donors in every society where students comprise significant amount. By knowing their perceptions about blood donation and by encouraging them to donate blood regularly will help to fulfill the demand of safe blood. Therefore, the research aimed to know the perceptions of university students towards blood donation and to explore the factors influencing their willingness to donate blood. Using convenient sampling, the data were collected from 201 current students of Jahangirnagar University through a well-structured questionnaire. Results show, the blood donation rate is quite good among students of Jahangirnagar University of Bangladesh (50.74%) and most of them are male (80.39%) compared to female (19.61%). The study revealed students “mother’s education level”, “residence type”, “number of blood donating times” and “involvement with blood donation organization” are highly significant factors with their blood donation behavior ($p < 0.001$). About 67% student donated their blood to save another life and 28% blood donor think, it is their social responsibility. Five reasons found behind not donating blood: health (71%) had no time (14%), no reason (6%) for fear (8%) and religion (1%). Though half of the university students donate blood but by introducing more motivational campaign by government or blood donation organization or university authority, rest of the students attitude can be converted, and they may donate blood which will help to fulfill Bangladesh’s annual safe blood demand.

Keywords: blood transfusion; university students; chi-square test; cross tabulation; Bangladesh

1. Introduction

Blood is a fundamental component of human body which conveys cell’s necessary materials such as nutrients and oxygen and transports away the same cell’s metabolic waste product (Nwabueze, *et al.*, 2014). Each year, millions of lives are saved through blood transfusion. The process of blood donation comprised of collection of blood from donor and then transfused into needy person’s body. According to WHO, blood transfusion as well as blood donation became one of the crucial life-saving interventions in health care (Safizadeh *et al.*, 2009 and WHO, 2004).

To date, blood cannot be produced artificially, therefore human resources are the only source of it (Olaiya *et al.*, 2004). Blood and products of blood are particularly important health care for people with flawed blood components (Misje, *et al.*, 2009). The demand of blood and its products get rising due to increased life expectancy and employment of newly developed surgical and therapeutical methods, but enough supply of blood and its product remain a big challenge. Because of increasing road accident and chronic non

communicable disease including sickle cell, heart disease, cancer (lymphoma and leukaemia), the needs of blood increasing deliberately in all over the world specially in developing countries like Bangladesh.

In Bangladesh, about 2.5 million units of blood is needed annually whereas only 40% of its demand fulfilled by the existing supply (Karim *et al.*, 2012). Though in developed countries, blood comes mostly from unpaid volunteers who donate blood for community supply but like all other developing countries, in Bangladesh also three types of donors are observable: professional (in exchange of money they donate blood), voluntary donors (donate blood routinely without any compensation) and replacement donors (donate to a relative, or friend who requires blood). Still now, the largest portion of the blood donors are professional in our country where most of them often identified as drug addicted and even sometimes carry severe disease like A, B, C, Syphilis, Gonoria and HIV/AIDS. Therefore, transmission of blood borne diseases among the blood receivers from those donors causes another severe problem. Thus, transfusion of safe blood becomes another challenge for us.

Most of the youngsters are the potential voluntary and replacement blood donors in every society where students are the largest portion of them. Since a large portion of population is student in Bangladesh, by knowing their perceptions about blood donation and by encouraging them to donate blood regularly, the demand of safe blood can be fulfilled to some extent. Therefore, the main aim of this research is to know the perceptions of university students towards blood donation and to assess the factors that influence their willingness to donate blood.

2. Materials and Methods

2.1. Study Design and Participants

This research was a descriptive cross-sectional survey. To assess the perceptions of blood donations, the survey was conducted among current students of Jahangirnagar University of Bangladesh from February 25, 2021, to April 25, 2021.

2.2. Sample Size

The required sample size is estimated using Cochran's formula:

$$n = \frac{z^2 \times p \times (1-p)}{d^2}$$

Where, $d = 0.07$ and confidence interval is 0.05. Hence, the required sample size is 201. Therefore, the data was collected from a total of 201 students and were included in the final analysis.

2.3. Data collection form

Each individual student filled the questionnaires which containing demographical data and questions related to awareness, delusion, and reasons behind blood donation. Data on students gender, age, types of family residence, religion, height, weight, blood group, fathers education level, mother's education level, father's occupation, mother's occupation, economic status, ever donated blood, residence during academic life, involvement with any blood donating organization, number of times of blood donation, whether the student will donate blood again if asked, attitude towards blood donation, ever declined to donate blood, the reasons behind the declination, motivation factors behind blood donation, and whether a token gift should be given to donor or not. Our targeted variable was whether a student ever donated blood.

2.4. Data Collection Procedure

To select the sample from our target population, convenient sampling technique was used. Due to COVID-19 pandemic, face to face interview was avoided. The data was collected through an online questionnaire (Google Form). The purpose of the survey was informed to students before the survey and assured confidentiality of their provided information. Through social media (Facebook, WhatsApp) the survey form was shared with students. The only eligibility criterion was to be a current student of Jahangirnagar University.

2.5. Statistical analysis

Univariate and bivariate analysis was conducted where univariate analysis was done to observe different percentages. Among bivariate analysis, cross tabulation technique was used to observe the pair-wise relation between blood donation behaviour and other variables. Also, chi-square test was used to observe the association between student's blood donation behaviour and different characteristics. Data analysis was conducted using IBM SPSS (Statistical package for social science) for Windows (Version 26.0).

3. Results

Among 201 university students, 102 (50.74%) students had donated blood whereas 99 students did not (Table 1). Blood donation behaviour was higher in males, with 82 males (80.39%) donating blood against 20 females (19.61%, Figure 1) and the role of gender on blood donation was found statistically significant ($p < 0.005$). Also, Students were categorized into three groups based on their age. It is noticeable that students are in age group 22-25 donated blood mostly (67.65%). Again, student's height seems an important issue influenced blood donation behavior. Students with height between 5'6" – 6' are more likely to donate blood than others (51.96%).

Most of the donors, that is 40 students (39.22%), had donated 2-4 times in their lifetime, 32 (31.37%) had donated more than 5 times and 30 (29.31%) had donated for once (Figure 2). Importantly, blood donation behaviour and number of donation times were found strongly associated ($p < 0.001$). By blood group, B+ blood group student is 47.06% donating more blood than their counterpart (Figure 3).

Chi-square test showed, strong evidence of a relationship between age and blood donation behavior ($p < 0.001$, Table 2) as well as student's weight ($p < 0.001$, Table 2). Most blood donors are Muslim (96.08%). Though religion was not found as significantly associated with blood donation. Equivalently, students who comes from family economically labelled as "quite well" were donated blood more than others (62.75%). Economic status of student's family was also not found statistically significant. About 68.69% students who donated blood regularly are from Urban areas which is quite surprising because we generally believe that urban people are smarter than rural people and possess much knowledge regarding any aspect. Though students' father's education level, father's occupation and mother's occupation were found insignificant, but their mothers education level seemed strongly significant ($p < 0.001$, Table 2). Most of the blood donor students' lives in campus (70.59%). Importantly, involvement with any blood donation organization, found to have a highly significant association with blood donation behaviour ($p < 0.001$, Table 2). The research found, 99% of blood donor students said "Yes" if they asked to donate blood again and this variable also found statistically significant ($p < 0.001$, Table2).

The attitudes of the students were also studied using the self-administered questionnaire. A question was thrown to students "Did you ever declined for donating blood?" In reply to this question 100 (49.75%) students responded that "yes" they did (Table 3). Reasons for their not donating and reasons of students who donated blood are depicted in Table 4. The commonest reason for not donating was found to be health reason (71%). Number of the students, 14% were found to be not donating blood because of they had no time.

Only 6 (6%) students did not donate without any reason and 8 (8%) students mentioned fear as their reason of not donating blood except one of the rejected candidates mentioned religious reason. Most of the students 67 (65.69%) were found to donate blood to save life, 28 (27.45%) students had donated due to their social responsibility and 6 (5.88%) students had donated just they like to do except one student had donated because patient was his/her relative (Table 4).

Table 1. Ever donated blood.

	Number of students (%)
Yes	102 (50.74%)
No	99 (49.26%)
Total	201

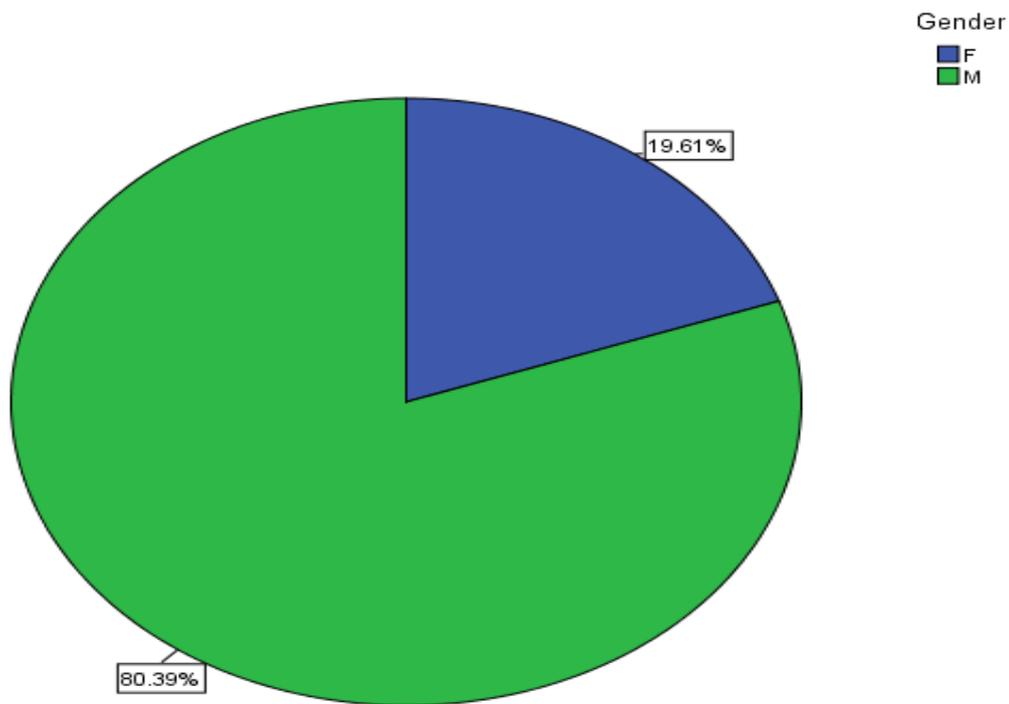


Figure 1. Pie-chart representing blood donating scenario by gender.

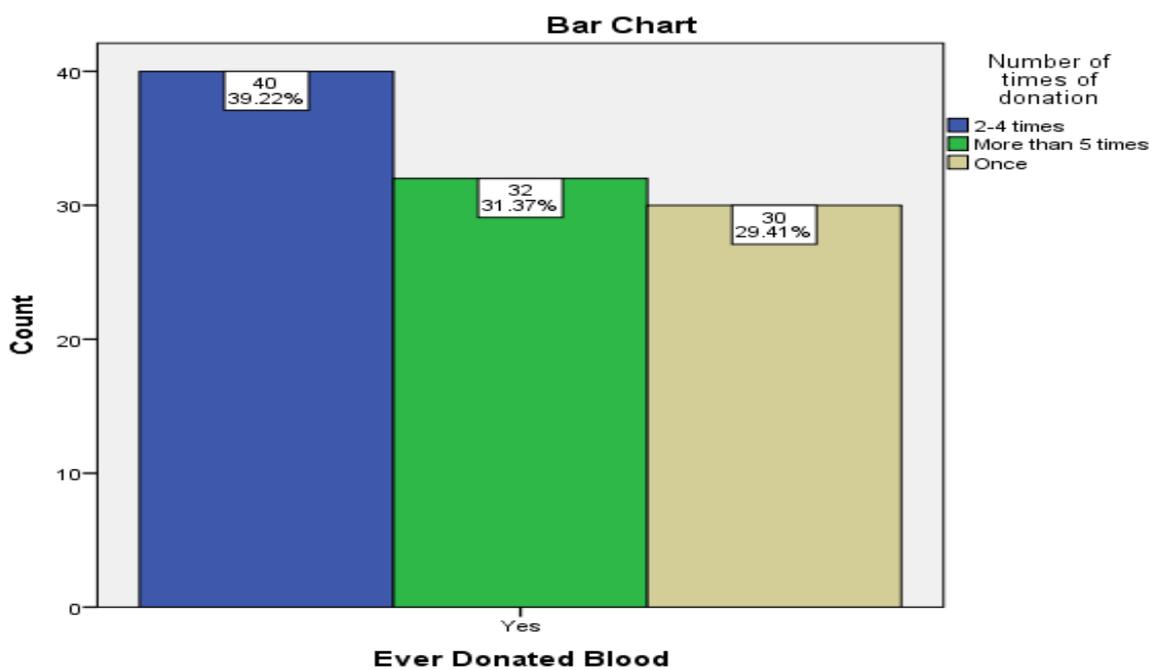


Figure 2. Bar chart representing number of times students blood donation.

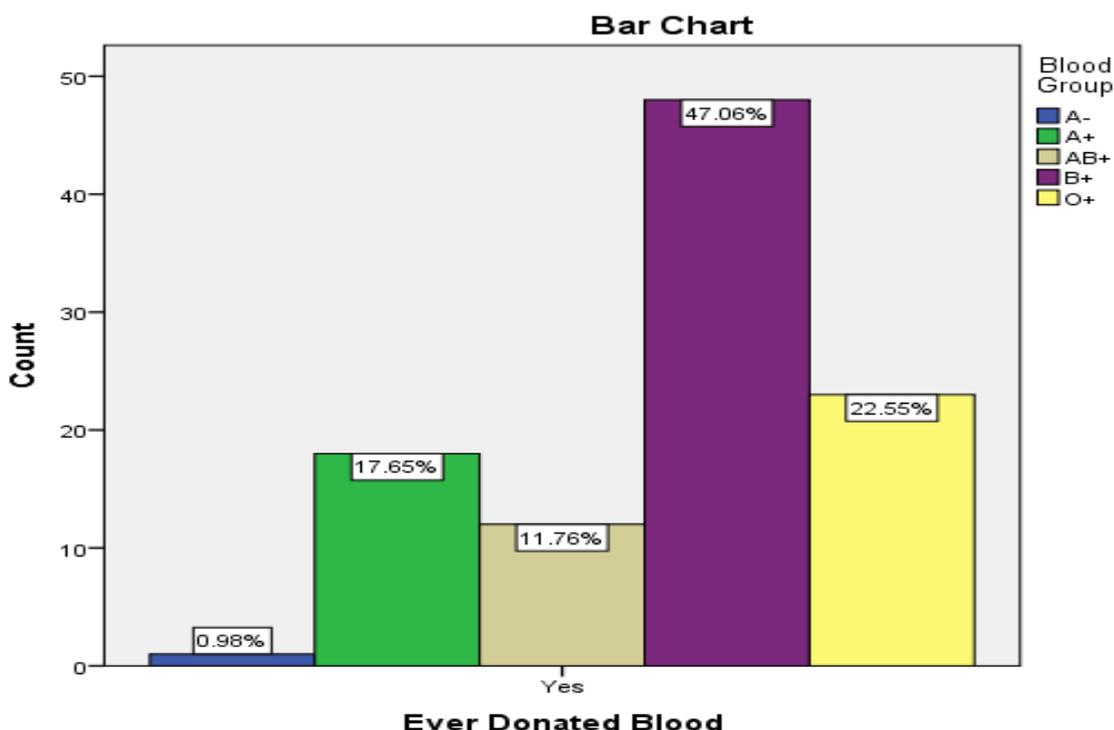


Figure 3. Bar chart representing number of students donating blood by their blood group.

Table 2. Demographic characteristics of students towards blood donation behavior.

Demographic characteristics of the students	Ever Donated Blood?	
	Yes (%)	No (%)
Age (a ^{***})		
18-21	27 (26.47%)	42 (42.42%)
22-25	69 (67.65%)	55 (55.56%)
26-29	6 (5.88%)	2 (2.02%)
χ^2 value		6.798 ^a
p-value		.033
Gender (a ^{***})		
Female	20(19.60%)	72 (72.72%)
Male	82 (80.40%)	27 (27.23%)
χ^2 value		57.112 ^a
p-value		.000<0.005
Religion (a)		
Hindu	4 (3.92%)	11 (11.11%)
Muslim	98 (96.08%)	88 (88.89%)
χ^2 value		3.760 ^a
p-value		.052
Height (a ^{***})		
4'1" – 4'5"	1 (0.98%)	10 (10.10%)
4'6" – 5'	1 (0.98%)	19 (19.19%)
5'1" – 5'5"	45 (44.12%)	50 (50.51%)
5'6" – 6'	53 (51.96%)	19 (19.19%)
> 6'	2 (1.96%)	1 (1.01%)
χ^2 value		40.180 ^a
p-value		.000<0.001
Weight of student (a ^{***})		
31-40	0 (0%)	6 (6.06%)
41-50	5 (4.90%)	29 (29.29%)
51-60	32 (31.38%)	31 (31.32%)

61-70	34 (33.33%)	24 (24.24%)
71-80	21 (20.59%)	7 (7.07%)
>80	10 (9.80%)	2 (2.02%)
χ^2 value		36.978 ^a
p-value		0.000<0.001
Fathers Education Level		
Primary	14 (13.73%)	11 (11.11%)
Secondary	19 (18.63%)	8 (8.09%)
Higher Secondary	17 (16.66%)	18 (18.18%)
Honr's	24 (23.53%)	29 (29.29%)
Masters	28 (27.45%)	33 (33.33%)
χ^2 value		5.708 ^a
p-value		0.222
Father's Occupation ^(a)		
Govt. Job	21 (20.59%)	27 (27.27%)
Private Job	14 (13.73%)	14 (14.14%)
Business	25 (24.51%)	28 (28.29%)
Retired	17 (16.66%)	11 (11.11%)
Others	25 (24.51%)	19 (19.19%)
χ^2 value		2.980 ^a
p-value		0.561
Mother's Education Level ^(a**)		
Primary	30 (29.41%)	11 (11.11%)
Secondary	27 (26.47%)	36 (36.36%)
Higher Secondary	29 (28.44%)	18 (18.18%)
Honrs	8 (7.84%)	14 (14.14%)
Masters	8 (7.84%)	20 (20.21%)
χ^2 values		19.699 ^a
p-values		0.000<0.001
Mother's Occupation ^(a**)		
Govt. Job	4 (3.92%)	13 (13.13%)
Private Job	1 (0.98%)	7 (7.07%)
Business	2 (1.96%)	1 (1.01%)
Retired	0 (0%)	2 (2.02%)
Others	95 (93.14%)	76 (76.77%)
χ^2 value		13.667 ^a
p-value		0.001
Respondent Residence ^(a*)		
Off Campus	30 (29.41%)	46 (46.46%)
On Campus	72 (70.59%)	53 (53.53%)
χ^2 value		6.213 ^a
p-value		0.013
Types of family residence ^(a***)		
Rural	56 (54.90%)	31 (31.31%)
Urban	46 (45.10%)	68 (68.69%)
χ^2 value		11.387 ^a
p-value		0.001<0.005

Economic status ^(a*)		
Not well off	33 (32.35%)	14 (14.14%)
Poor	2 (1.96%)	3 (3.03%)
Quite well	64 (62.75%)	81 (81.82%)
Wealthy	3 (2.94%)	1 (1.01%)
χ^2 value		10.832 ^a
p-value		.013
Blood Group ^(a)		
A-	1 (0.98%)	0 (0%)
A+	18 (17.65%)	28 (28.29%)
AB+	12 (11.76%)	6 (6.06%)
B-	0 (0%)	2 (2.02%)

B+	48 (47.06%)	33 (33.33%)
O-	0 (0%)	2 (2.02%)
O+	23 (22.55%)	28 (28.28%)
χ^2 value		12.400 ^a
p-value		0.054
Have you ever declined to donate blood (a)		
No	54 (52.94%)	47 (47.47%)
Yes	48 (47.06%)	52 (52.53%)
χ^2 value		1.476 ^a
p-value		.478
Number of times of donation (a***)		
None	1 (0.98%)	99 (100%)
Once	29 (28.43%)	0 (0%)
2-4 times	40 (39.22%)	0 (0%)
More than 5 times	32 (31.37%)	0 (0%)
χ^2 value		197.039 ^a
p-value		0.000<0.005
Motivation factor behind blood donation (a)		
He/ She was my relative	1 (0.98%)	3 (3.03%)
Just like to do	6 (5.88%)	6 (6.06%)
Money	0 (0%)	1 (1.01%)
Social responsibility	28 (27.45%)	14 (14.14%)
To save life	67 (65.69%)	75 (75.76%)
χ^2 value		7.074 ^a
p-value		0.132
Involvement with any blood donation organization (a***)		
No	66 (64.71%)	84 (84.85%)
Yes	36 (35.29%)	15 (15.15%)
χ^2 value		10.765
p-values		.001<0.005
Will you donate again if asked? (a***)		
No	3 (2.94%)	26 (26.26%)
Yes	99 (97.06%)	73 (73.74%)
χ^2 values		22.132 ^a
p-values		.000<0.005

^aRepresent the significance level associated with ever donated blood.

*p<0.05; **p<0.01; and ***p<0.001

Table 3. Have you ever declined to donate blood?

Ever declined to donate blood?	
Yes	100 (49.75%)
No	101 (50.25%)
Total	201

Table 4. Motivating and de-motivating factors behind blood donation.

Reasons of not donating blood	Non-donors (%)
Health reason	71 (71%)
No time	14 (14%)
No reason	6 (6%)
Fear	8 (8%)
For religious	1 (1%)
Total	100
Reasons behind blood donation	Donors (%)
To save life	67 (65.69%)
Social responsibility	28 (27.45%)
Just like to do	6 (5.88%)
He/She was my relative	1 (0.98%)
Total	102

Table 5. Role of token gift in blood donation.

		Ever donated blood		p-value
		Yes	No	
Do you think token gift should be given to donor?	Yes	44 (43.14%)	56 (56.57%)	0.067
	No	58 (56.86%)	43 (43.43%)	

4. Discussion

The research aimed to know the perceptions of university students towards blood donation and to assess the factors influencing their willingness to donate blood. The rate of blood donation is quite good among students of Jahangirnagar University of Bangladesh (50.74%, Table 1). Where larger percentage of blood donors are male (80.39%) compared to female (19.61%). Based on age, students were categorized into three groups: 18-21, 22-25 and 26-29. Students within age group 22-25 were found to donate blood frequently (67.65%) than other age grouped students. The possible reason behind this because this aged student can take more risk than others. Students were also categorized into several groups based on their height: 4'1-4'5, 4'6" – 5', 5'1" – 5'5" 5'6" – 6' and > 6'. Most of the blood donors (51.96%) are with height 5'6" – 6' and about 44.12% blood donors are with height 5'1-5'5. At the same way, most blood donors (33.33%) were of weight within 61-70 kg. Since majority of the population of our country is Muslim so it is not surprising that most of the blood donors are Muslim (96.08%).

The current study found that mother's education is significantly associated with student's blood donating behaviour. Whose mother had primary education (29.41%) have more tendency to donate blood than students whose mother have high level of education (7.84%). This can happen due to educated mother are more conscious about their child health (Chen, Hongbin, 2009) for this reason often they create pressure on child which demonstrating children with more difficult behaviour problems (Fox *et al.*, 2010) as a result they are not capable to take any decision by their own.

The association of students Mother's Occupation and blood donation are highly significant. The findings revealed student's whose mother involved any other job (93.14%) have an increased tendency to donate blood than other students. The possible reason behind it can be a smaller number of the mothers are job holder in Bangladesh as reported in Biswas *et al.*, 2001, so the large proportion of students fall in the others group containing housewife as well as mother involved with other activity.

The study also revealed that "Types of family residence" as one of the predictors of tendency of blood donation of students. Students whose family live in rural area (54.90%) have more tendency to donate blood than whose family live in urban areas (45.10%). Which is surprising since we believe rural people are more aware of everything and up to date in terms of knowledge compared to urban people. Students who donated blood 2-4 times (39.22%) possess higher tendency of donating blood. Students who donated more than 5 times (31.37%) donate frequently than other students

Involvement with any blood donation organization is an important determinant of blood donation behaviour of students. Students who are involved with any blood donation organization (64.71%) are likely to donate blood than who are not (34.29%). This result is similar to a study conducted in Bangladesh among university students (Karim *et al.*, 2012), which may be because students who are not familiar directly with blood donation feel fear

(Table 4) (Verma *et al.*, 2016; Hossain *et al.*, 1997) to donate blood but students who work with any blood donation organization they are mostly free from fear of it. Students who are willing to donate again if asked (97.06%) have an increased tendency to donate blood than students who are not (2.94%).

The study identified five reasons of not donating blood. Most of the students (71%) responded health reason of not donating blood. Followed by students who had no time (14%), no reason (6%) and for fear (8%) students declined to donate blood. Again 65.69% students replied they donate blood to save life and 27.45% students think that blood donation is their social responsibility (Table 4). No association found between blood donation and think of students about token gift. Among students who ever donated blood thinks token gift should not give (56.86%) and 43.14% students think token gift should give (Table 5).

5. Conclusions

Based on the analysis of this study we can conclude that, though half of the university students donate blood regularly but by introducing more motivational campaign by government or blood donation organization or university authority, rest of the students attitude can be converted, and they may donate blood which will help to fulfill Bangladesh's annual safe blood demand. Also, a token gift can be given to blood donor to make them happy to some extent.

Conflict of interest

None to declare.

Authors' contribution

Author herself is responsible for conceptualization, data collection, analysis, interpretation and supervision.

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