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A Study to Assess the Knowledge and Attitude Regarding Blood Donation Among Undergraduate Students in a Selected Institution of Aizawl, Mizoram.

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Abstract

Blood is one of the essential bodily components that can save lives, yet many people struggle to get safe blood in a timely manner. In India, blood donation exceeds the annual estimated needs in the year 2024-2025. In Mizoram blood donation is considered a social obligation and cultural practice. This study aims to assess the level of knowledge and attitude regarding blood donation and to find the correlation between knowledge and attitude as well as the association between knowledge, attitude and demographic variables. In this descriptive quantitative study, a stratified random sampling technique was used. 186 undergraduates participated in this study. Data were collected using a self-structured questionnaire and a 4-point Likert scale. Data collected were analysed using Microsoft Excel and SPSS version 20. The results revealed that the majority of the students had moderately adequate knowledge regarding blood donation (n = 90, 56.4%), followed by adequate knowledge (n = 67, 36%) and inadequate knowledge (n = 29, 15.5%), while a substantial portion demonstrated a positive attitude (83.48%), and a smaller portion exhibited a negative attitude towards blood donation (16.52%). The correlation between knowledge and attitude was found not to be significant (r value 0.219). While there is a significant association between knowledge and age group of the demographic variables (p=0.045), the association between attitude and demographic variables was observed not to be significant. In conclusion, strengthening educational strategies to improve the knowledge and attitude of students is necessary to improve the recruitment of voluntary blood donation.

Keywords: Knowledge, Attitude, Blood Donation, Undergraduate Students.

Introduction

Blood is a vital bodily fluid that circulates through the cardiovascular system of humans and other vertebrates. It consists of liquid plasma and cellular components, including red blood cells, white blood cells, and platelets. Blood serves several crucial functions in the body like transportation of oxygen, nutrients, hormones, and waste products throughout the body. It regulates body temperature and pH balance, defends against pathogens and foreign substances. Blood platelets and clotting factors help prevent excessive blood loss by forming clots at sites of injury. Approximately, an adult human has 4.5 to 5.5 litres of blood.

Blood transfusion is a lifesaving procedure that plays a crucial role in enhancing patients' health and saving life [1]. Blood donation is a selfless act that helps the person who are in need. Three blood components may be obtained from a single donation that are helpful for particular medical needs. There are certain criteria to be known by individuals who are planning to donate such as blood pressure and haemoglobin level [2].

Donating blood offers numerous health benefits, including improving cardiovascular health by enhancing blood flow and reducing the risk of heart disease and stroke through lowered blood viscosity and better lipid profiles. It also helps lower blood pressure by maintaining fluid balance, reduces the risk of cancer by decreasing iron levels and oxidative stress, aids in weight loss by burning calories, and serves as therapy for conditions like hemochromatosis by regulating iron levels. [3], [4]

A 2022 study estimated the eligible donor population in India at 402 million. The supply was calculated at 33.8 donations per thousand people, against a demand of 36.3 per thousand, resulting in an annual shortage of one million units. [5]

Given that blood donation can save the lives of individuals in need, society takes blood donation very seriously. In Mizoram, the concept of voluntary blood donation is present due to social obligation and custom. The vast and healthy student population may be a potential blood donor to help satisfy the safe blood demands.

With regard to this convenience and availability of pool of students available for blood donation, students of Zirtiri Residential Science College and ICFAI could be a potential source of blood donors. Thus, the study aims to assess the knowledge and attitudes of undergraduate students regarding blood donation.

Objective

1. To assess the level of knowledge regarding blood donation among undergraduate students.
2. To evaluate the attitude regarding blood donation among undergraduate students.
3. To find out the correlation between knowledge and attitude regarding blood donation among undergraduate students.
4. To determine the association between knowledge regarding blood donation among undergraduate students and demographic variables.
5. To determine the association between attitude regarding blood donation among undergraduate students and demographic variables.

Hypotheses

H_1: There will be significant correlation between knowledge and attitude among undergraduate students at the 0.05 level of significance.

H_2: There will be significant association between knowledge regarding blood donation among undergraduate students and demographic variables at the 0.05 level of significance.

H_3: There will be significant association between attitude regarding blood donation among undergraduate students and demographic variables at the 0.05 level of significance.

Review of Literature

A literature review highlights prior work done in the area, identifies key researchers, and addresses which questions have already been explored. The review also examines the methods and approaches used in previous studies, as well as the prevailing theories and hypotheses related to the topic. Review of literature is for this study is taken under the heading related to knowledge and attitude regarding blood donation among undergraduate students.

Methodology

In this study, a quantitative descriptive research design is employed. The study was conducted among the undergraduate students of selected institution of Gov't Zirtiri Residential Science College, located in Durtlang Leitan, Aizawl, Mizoram. The population for the study was 854 students from first, third and fifth semesters of Gov't Zirtiri Residential Science College and ICFAI University. Sample size was calculated using finite population technique, for a population of 854, using a 95% confidence level and a margin of error of 5%, the sample size is 186.

Sampling Criteria

Inclusion criteria:

- Students enrolled as an undergraduate student at Gov't Zirtiri Residential Science College and ICFAI University.
- Students who are available at time of data collection.

Exclusion criteria

- Students who are not willing to participate in the study.

Development of Tool

After reviewing a related literature regarding blood donation and blood donation guidelines provided by the National Blood Transfusion Council (NBTC) and National Aids Control Organization (NACO), a self-structured knowledge questionnaire and 4-point Likert scale to assess the attitude was developed.

Ethical Consideration

The Institutional Ethics Committee of RIPANS granted ethical authorization for the study to be carried out, permission from Principal of selected Institution to conduct study was obtained, verbal and written consent were taken from the participants before conducting the research study. Privacy and confidentiality of the study participants maintained during the study.

Findings of the Study

Description of frequency and percentage distribution of demographic variables

Figure 1: Frequency and percentage distribution of Age of demographic variables. (n=186)

n=186

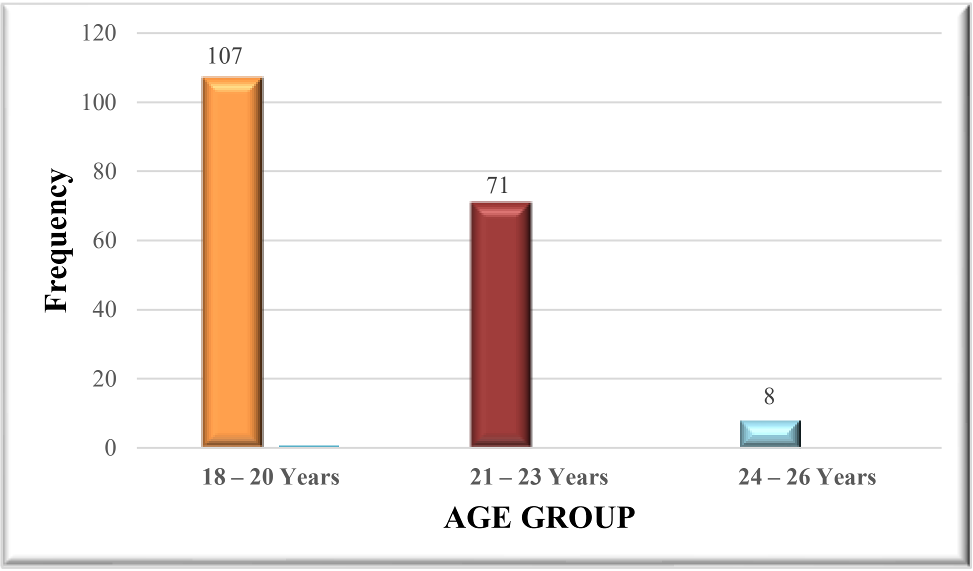
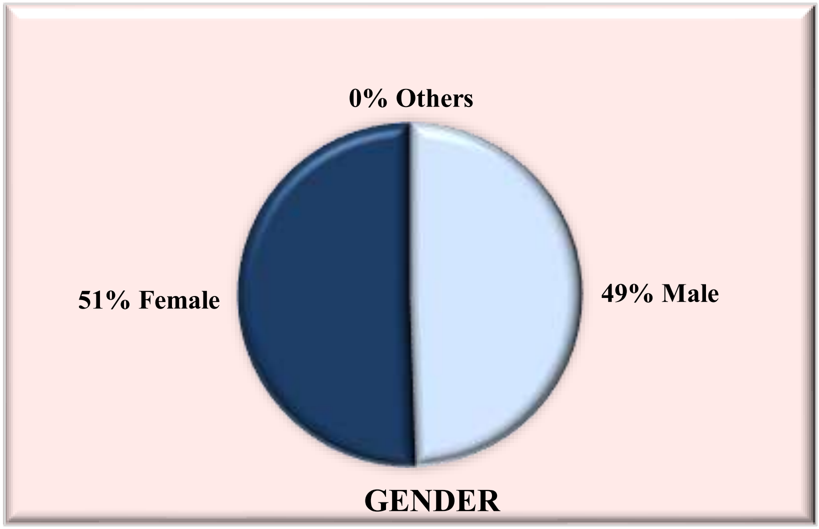


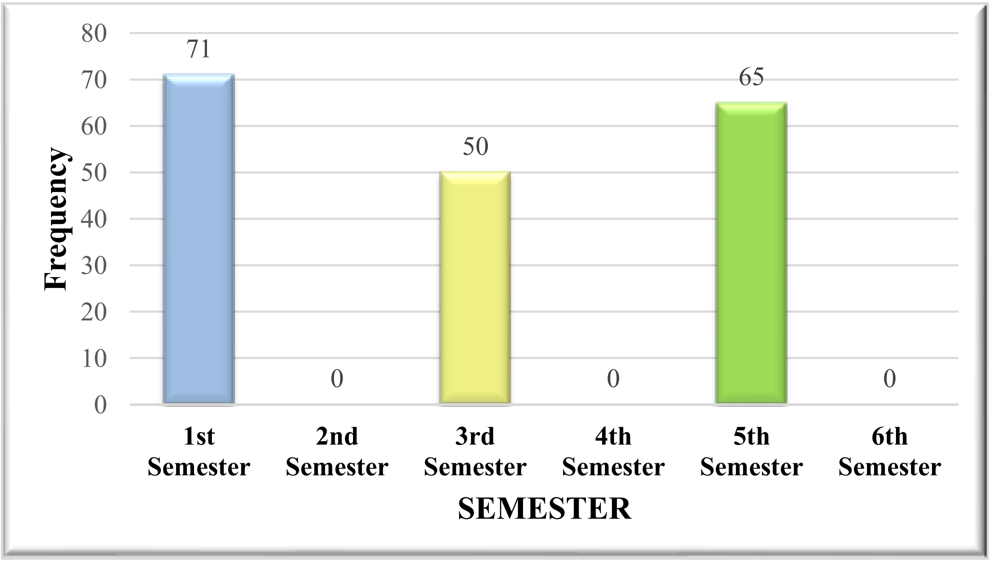
Figure 1 presents the age of the participants ranged between 18 and 26 years, with the majority (57.5%) aged 18–20 years, followed by (38.2%) aged 21–23 years, and a smaller proportion (4.3%) aged 24–26 years. The mean age was 1.468 ± 0.580, indicating a relatively young participant group.

Figure 2: Frequency and percentage distribution of Gender of demographic variables. (n=186)



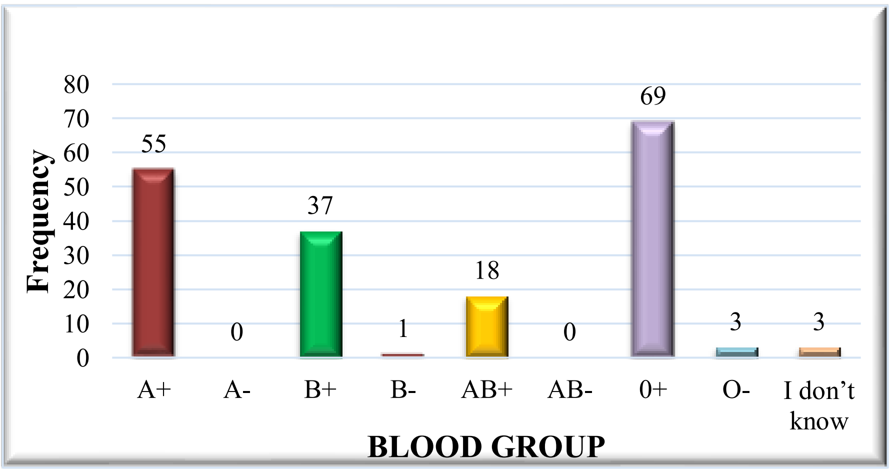
In terms of gender distribution, the sample was nearly balanced, with 49.5% male and 50.5% female participants, while no participant identified as "other."

Figure 3: Frequency and percentage distribution of Semesters of demographic variables. n=186



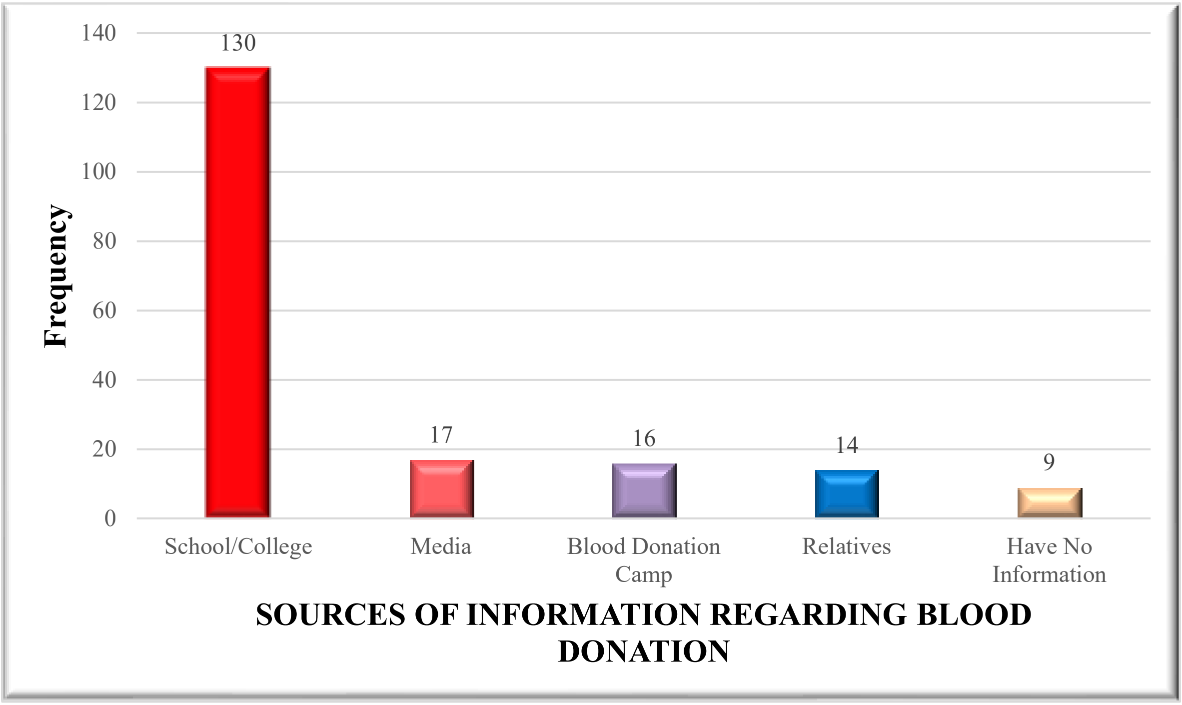
Regarding academic semester, the majority of students were enrolled in the 1st semester (38.2%) and 5th semester (34.9%), with a notable portion in the 3rd semester (26.9%), and no participants from the 2nd, 4th, or 6th semesters.

Figure 4: Frequency and percentage distribution of Blood Group of demographic variables (n=186)



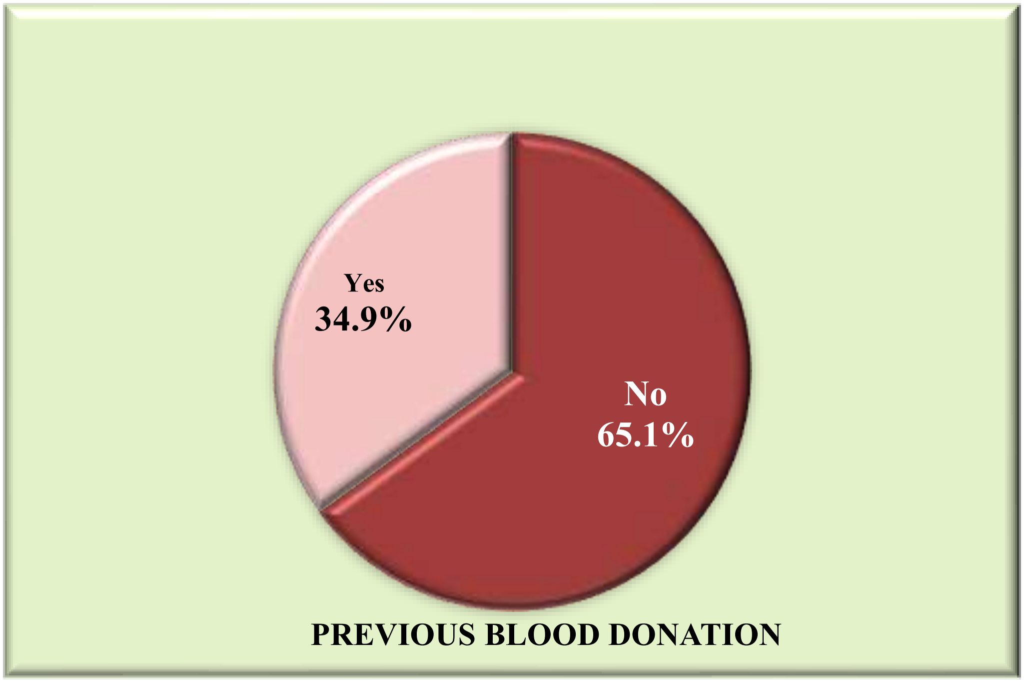
The blood group distribution showed that O+ was the most common (37.1%), followed by A+ (29.6%), B+ (19.9%), AB+ (9.7%), with very few participants in the B-, O-, and unknown blood group categories.

Figure 5: Frequency and percentage distribution of source of information regarding blood donation. (n=186)



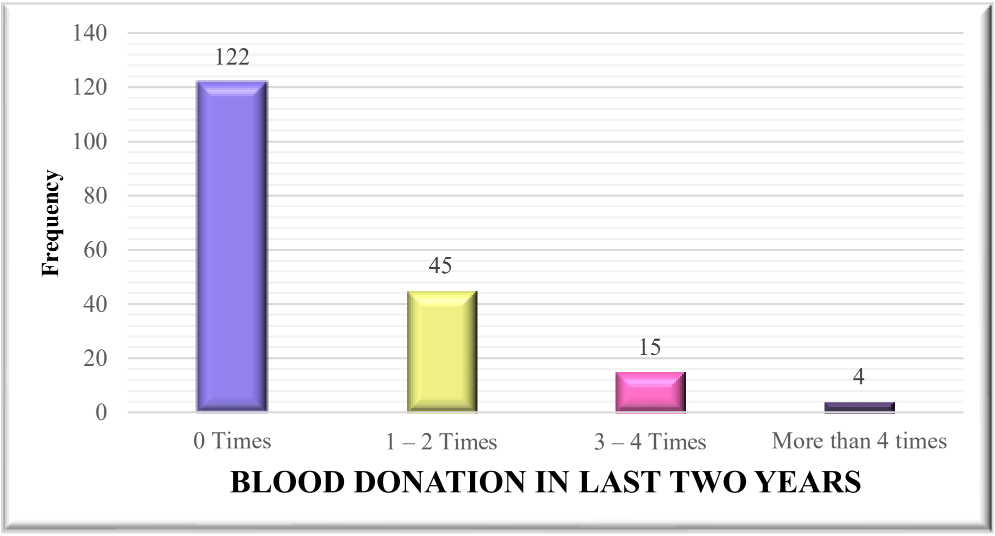
Most participants (69.9%) reported school or college as their primary source of information regarding blood donation, while media (9.1%), blood donation camps (8.6%), and relatives (7.5%) were fewer common sources.

Figure 6: Frequency and percentage distribution of previous blood donation. (n=186)



Regarding blood donation practices, 34.9% had previously donated blood, while 65.1% had not donated yet.

Figure 7: Frequency and percentage distribution of previous blood donation in last 2 years. (n=186)



Among donors, the majority donated 1–2 times in the last two years (24.2%), with fewer donating 3–4 times (8.1%) or more than four times (2.2%).

These findings highlight a young, balanced sample with moderate prior exposure to blood donation, primarily informed through educational institutions.

Description of frequency and percentage distribution of knowledge score regarding blood donation among undergraduate students.

Table 1: Structured knowledge questionnaire to assess the level of knowledge regarding blood donation.

n=186

Evaluation criteria	**Level of knowledge**	**No. of students/Frequency**	**Percentage**
14 and above point	Adequate knowledge	67	36.0%
9-13 point	Moderately adequate knowledge	90	48.37%
8 and below	Inadequate knowledge	29	15.59%

Table 1 presents the knowledge level of the student's regarding blood donation. among 186 participants, 90 (48.37%) students have moderately adequate knowledge, 67 (36.0%) students have adequate knowledge and 29 (15.59%) students have inadequate knowledge regarding blood donation. This result shows that the students need to get awareness regarding blood donation basic facts, eligibility and health conditions as well as the post donation care.

Description of frequency and percentage distribution of attitude regarding blood donation among undergraduate students.

The attitude of undergraduate students regarding blood donation was evaluated based on the percentage of the statement with highest frequency on a 4-point Likert Scale. The statement were divided into two segment, positive and negative statement.

Table 2: 4-point Likert scale to evaluate attitude of undergraduate students regarding blood donation. (n=186)

Sl. no	Items	Strongly Disagree	Dis-agree	Agree	Strongly agree	Percent-age
1	Blood donation can save lives.	0	0	43	**143**	76.881
2	Blood donation is a social responsibility that everyone should fulfill.	2	26	**135**	23	72.58
3	I feel proud when I donate blood.	2	10	**110**	64	59.139
4	Blood donation camps should be organized more frequently in colleges.	1	8	**130**	47	69.892
5	I am willing to donate blood when there is an emergency need or shortage.	3	4	88	**91**	48.924
6	I trust the safety and hygiene practices followed at blood donation camps.	0	8	**140**	38	75.268
7	I am afraid of blood, which discourages me from donating blood.	43	**86**	38	19	46.236
8	I am afraid of contracting infections during blood donation.	23	59	**84**	20	45.161
9	I will donate blood only if only there is a reward.	**103**	63	14	6	55.376
10	I don't find the need to donate blood.	**108**	56	18	4	58.064

From table 2, the findings are:

- A majority strongly agreed that blood donation can save lives (76.9%), reflecting a positive perception of its life-saving importance.
- Significant proportion agreed that blood donation is a social responsibility for everyone (72.58%), indicating limited acknowledgment of the altruistic aspect.
- About (59.139%) expressed pride in donating blood. Most participants agreed that blood donation camps should be organized more frequently in colleges (69.9%).

- Nearly half (48.9%) reported willingness to donate during emergencies or shortages, showing readiness to respond to urgent needs.
- Trust in the safety and hygiene practices at donation camps was agreed upon (75.26%), while concern about contracting infections was a notable barrier (45.161%).
- Demotivation to blood donation due to fear of blood was disagreed upon under half of participants (46.236%).
- Regarding incentives, more than half strongly disagreed with donating only for rewards (55.376%) and with the notion that blood donation is unnecessary (58.1%), indicating intrinsic motivation among participants.

The findings suggest a generally positive attitude toward blood donation, though fear and limited awareness of social responsibility may influence participation. Overall, participants exhibited a positive attitude, though fear and limited recognition of social responsibility may affect donation behaviour.

Description of correlation between knowledge and attitude regarding blood donation among undergraduate students.

The correlation between knowledge and attitude regarding blood donation among undergraduate students was find out using Karl Pearson Corelation Coefficient. The findings is presented in the table given below.

Table 3: Correlation between knowledge and attitude of undergraduate students regarding blood donation. (n=186).

	Mean	Standard deviation	'r'-value
Knowledge	1.8710	0.66942	0.219
Attitude	1.1720	0.37844	

Table 3 presents the correlation between participants' knowledge and attitude regarding blood donation. The mean knowledge score was 1.8710 ± 0.669, while the mean attitude score was 1.1720 ± 0.378. Pearson's correlation coefficient ('r') between knowledge and attitude was 0.219, indicating a weak positive relationship.

Description of association between knowledge and demographic variables regarding blood donation.

Outcome related to the association between knowledge and demographic variables are described in this section. To determine whether there is a significant association, Chi square test was used employed. Results are presented in table as indicated below.

Table 4. Association between knowledge regarding blood donation among undergraduate students and demographic variables. (n=186)

Demographic variables	LEVEL OF KNOWLEDGE			χ^2	df	Tabulated value	P value
	Adequate	Moderately adequate	Inadequate				
What is your age?							
18-20	34	57	16				

21-23 24 -26	18 3	42 1	11 4	11.2	4	9.4	0.0
Gender							
Male Female Others	23 32 0	49 51 0	20 11 0	4.1	2	5.9	0.1
Semester							
1st Semester 2nd Semester 3rd Semester 4th Semester 5th Semester 6th Semester	21 0 12 0 22 0	35 0 34 0 31 0	15 0 4 0 12 0	6.7	4	9.4	0.1
Blood group							
A+ A- B+ B- AB+ AB- 0+ O- I don't know	16 0 13 0 6 0 18 1 1	31 0 20 0 10 0 37 1 1	8 0 4 1 2 0 14 1 1	9.1	12	21.0	0.6
What is your source of information regarding blood donation?							
School/College Media Blood Donation Camp Relatives Have no Information	42 4 5 2 2	68 9 7 10 6	20 4 4 2 1	4.7	8	15.5	0.7
Have you ever donated blood before?							
Yes No	17 38	38 62	10 21	0.9	2	5.9	0.6
If yes, how many times have you donated blood in the last 2 years?							
0 Times 1 – 2 Times 3 – 4 Times More than 4 times	38 12 2 3	63 28 8 1	21 5 5 0	9.6	6	12.5	0.1

Table 4 presents the association between the level of knowledge regarding blood donation and demographic variables. Age was the only variable found to be significantly associated with knowledge levels. Participants aged 18–20 years demonstrated higher adequate knowledge compared to those aged 21–23 years and 24–26 years, indicating that younger students may have greater awareness about blood donation practices.

These findings reveal that while age plays a significant role in students' knowledge regarding blood donation, other demographic factors—including gender, semester, blood group, source of information, and prior donation history—does not significantly influence knowledge levels.

Description of association between attitude and demographic variables regarding blood donation.
The outcome reflecting the association between attitude and demographic variables regarding blood donation was described in this section. To determine the association exist, Chi square test was employed. The result is presented in the following table.

Table 5. Association between attitude regarding blood donation among undergraduate students and demographic variables. (n=186).

Demographic variables	Level of attitude		χ^2	d.f	Tabulated value	P value
	Positive Attitude	Negative Attitude				
What is your age?						
18 – 20 Years	90	17				
21 – 23 Years	58	13	0.5	2	5.9	0.7
24 – 26 Years	6	2				
Gender						
Male	73	19				
Female	81	13	1.5	1	3.8	0.2
Others	0	0				
Semester						
1st Semester	62	9				
2nd Semester	0	0				
3rd Semester	37	13				
4th Semester	0	0	3.8	2	5.9	0.1
5th Semester	55	10				
6th Semester	0	0				
Blood Group						
A+	47	8				
A-	0	0				
B+	34	3				
B-	1	0				
AB+	13	5	9.8	6	12.5	0.1
AB-	0	0				
0+	56	13				
O-	1	2				
I don't know	2	1				
What is your source of information regarding blood donation?						
School/College	108	22				
Media	13	4				
Blood Donation Camp	13	3	0.8	4	9.4	0.9

Relatives Have no Information	12 8	2 1				
Have you ever donated blood before?						
Yes No	52 102	13 19	0.5	1	3.8	0.4
If yes, how many times have you donated blood in the last 2 years?						
0 Times 1 – 2 Times 3 – 4 Times More than 4 times	103 36 11 4	19 9 4 0	2.2	3	7.8	0.5

Table 5 presents the association between students' attitudes toward blood donation and various demographic variables. None of the demographic variables- Age, Gender, Semester, Blood Group, Sources of information regarding blood donation, previous blood donation and donation in the last 2 years showed a significant association with attitude levels.

These results indicate that students' attitudes toward blood donation are generally independent of demographic factors, prior donation behaviour, or sources of information. This suggests that positive or negative attitudes may be influenced more by intrinsic motivation, personal beliefs, or broader societal factors rather than demographic characteristics, emphasizing the need for attitude-focused interventions and awareness programs to foster a culture of voluntary blood donation among college students

Conclusion

In conclusion, the study reveals that there needs to be strategies and motivation to increase the knowledge and awareness of students regarding the eligibility of doners and the associated health conditions. Counselling and health education are needed to motivate them to donate blood, evidence-based studies can be conducted to investigate the most fear of participants i.e. fear of contracting infections and satisfaction of the donors.

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