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## Blood Donation Awareness in High School Students: Knowledge and Attitude Analysis

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**Abstract** Blood transfusion is life saving for a number of patients. The young minds of school children need to be instilled with benefits of blood donation to create awareness in long term. If appropriate strategies are designed and implemented to improve knowledge and attitude, the students will become not only future blood donors but also the motivators for community. Therefore, this study was conducted to determine the knowledge and attitude regarding blood donation in high school students so that they are motivated at a young age to donate blood once they are eligible. The study was carried in a senior secondary school of Ludhiana where they were administered a self-structured questionnaire to study awareness regarding blood donation. A total of 77 students were enrolled and a 54.4% of total students are aware about the primary knowledge regarding blood donation and 92% students know their blood group. The average awareness for Secondary Questions is 37.3%. Around 88.3% of students are willing to donate blood, once they are eligible. The result signifies importance of spreading awareness in potential blood donors. The distribution of flyer with the right answers helped in imparting correct knowledge to the students.

**Keywords** Blood group, Blood transfusion, Donors, Haemoglobin, Rh factor

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### Introduction

Blood transfusion is an important concern for society, as it is life saving for a number of patients. There is an excessive need of blood transfusion despite limited availability of blood on one hand and serious risks associated with transfusion on the other. There is a constant concern in efforts to meet demands for blood. However, only a small percentage of eligible populations actually choose to donate blood on a regular basis. A significant number of eligible donors are deferred temporarily or permanently because of stringent deferral criteria being practiced to ensure blood safety [1]. Also, supply of blood is very short mainly due to lack of awareness and apprehensions about donating blood [2].

Replacement donors constitute more than 45% of blood donors in India [3]. However, voluntary and non remunerated blood donors are the cornerstone of a safe adequate supply of blood and blood components [4]. The young minds of school children need to be instilled with benefits of donation to create awareness in long term. The students should be taught not to indulge in activities that would lead to donor deferral. The young population are the hope of present and future source of safe blood supply [5, 6]. There is a great need to construct responsiveness among the population at large and students about blood donation to maintain a regular blood supply [7]. One of them is the mass media which plays a major role in creating awareness amongst the general public [8]. Along with this, appropriate strategies should be designed and implemented to improve



knowledge and attitude. This will make the students, not only the future blood donors but also motivators plus role models for the community [7].

Therefore, this study is conducted to determine knowledge and attitude regarding blood donation in high school students so that they are motivated at a young age to donate blood once they are eligible.

### Material and Methods

The study was carried in a senior secondary school of Ludhiana where 77 students were enrolled from grade 11 and 12. A prior approval to conduct the research was taken from the school authorities. A self-structured questionnaire (**Annexure-I**), validated from the experts of a medical institution (Dayanand Medical College and Hospital, Ludhiana), was administered to the students after their verbal consent. The questions were derived on the basis of NACO [9] “**Guidelines for blood donor selection & blood donor referral, 2017**” and WHO [10] “**Guidelines on Assessing Donor Suitability for Blood Donation, 2012.**” After collecting the questionnaire, the students were presented with a flyer (**Annexure-II**) containing the correct answers to the questions along with necessary information regarding blood donation.

### Hypothesis

The self-structured questionnaire consisted of 11 questions. According to the experts,

1. Questions 1, 2, 3, 4 and 9 are the primary questions, which the students must be aware of (100%).
2. Questions 5, 6, 7 and 8 are the secondary questions which around 50%-60% of students should know.
3. Percentage analysis of questions 10 and 11 deals with the attitude of the students towards blood donation, which students should respond (around 80%) as “Yes”.

The data collected was analyzed using descriptive statistical analysis.

### Objectives

1. To study the awareness regarding blood donation in high school students.
2. To make high school students aware about blood donation and motivate them to donate blood.

### Results

Total number of students enrolled: 77

Number of Boys: 39

Number of Girls: 38

Age group: 16-18 years

The questions in the self-structured questionnaire were divided into three categories:

Primary Questions: 1, 2, 3, 4, 9

Secondary Questions: 5, 6, 7, 8

Attitude Analysis Questions: 10, 11

The primary and secondary questions deal with knowledge component of the students.

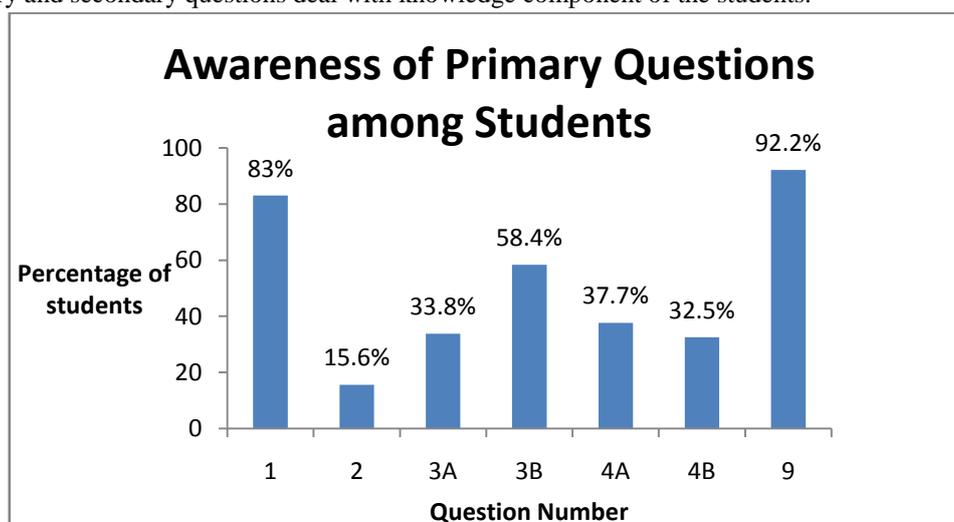


Figure 1: Analysis of Primary Questions



On an average, a 54.4% of total students are aware about the primary knowledge (Fig. 1) regarding blood donation. There is a huge difference (around 50%) between the hypothesis 1 and the actual results. Therefore, the result signifies the importance of spreading awareness in potential blood donors.

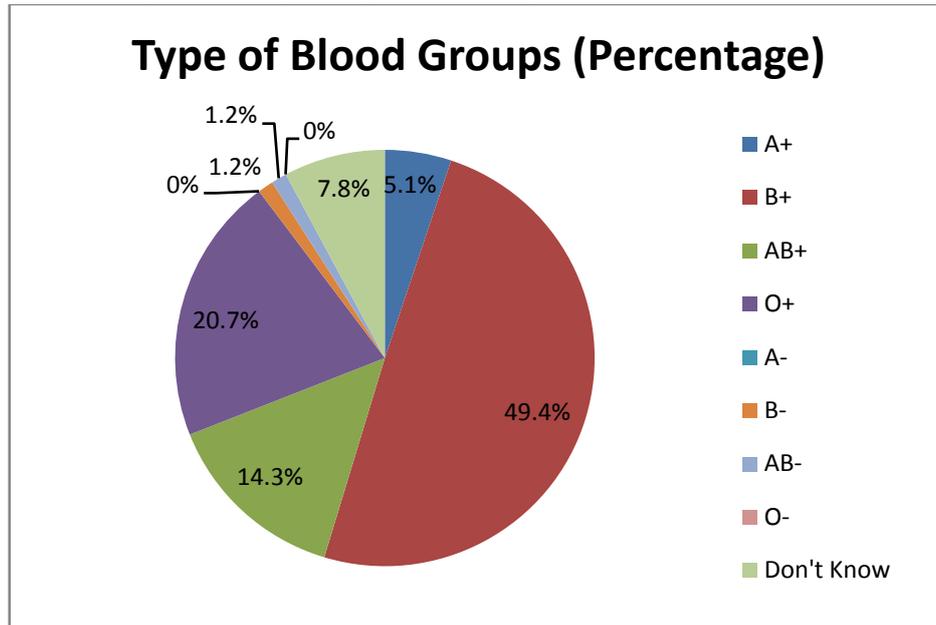


Figure 2: Type of blood groups (Analysis of Question 9)

Around 92% students know their blood group (Fig. 2), and 7.8% students are unaware of their blood group. Two students in the study have blood group B negative and AB negative. They were taken for one to one session where the significance of Rh factor was discussed with them.

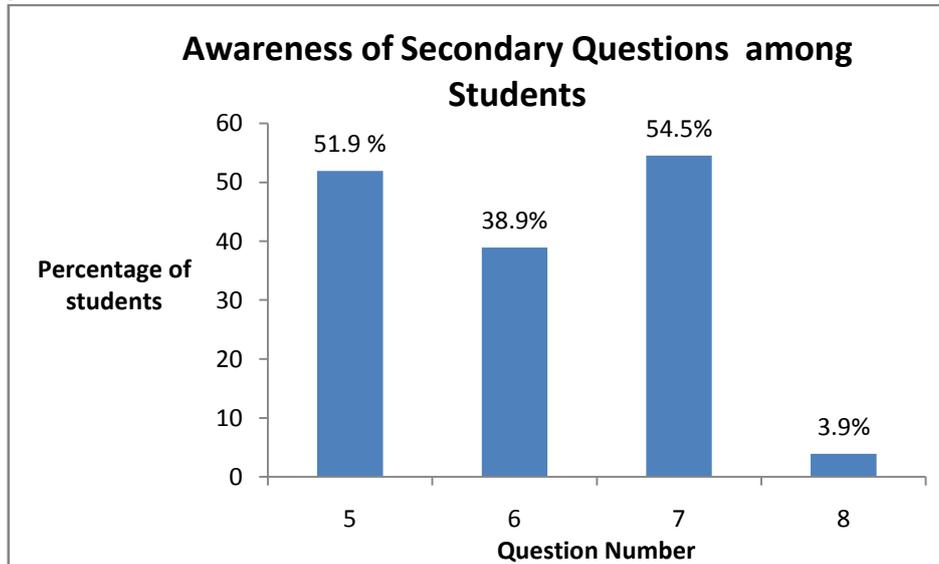


Figure 3: Analysis of Secondary Questions

The average awareness for Secondary Questions (Fig. 3) is 37.3% which does not match the hypothesis 2, emphasizing the need to spread awareness.

The difficulty index of question 8 is high for grade 11 and 12 students, but the information presented in it was of importance.

**Attitudinal Analysis**

**Questions 10: Have you seen anyone from your family/friend donating blood?**

75.3% have previous exposure with blood donation.



**Questions 11: Will you be willing to donate blood once you are eligible?**

88.3% are willing to donate blood once eligible.

Results of questions 10 and 11 correspond with the hypothesis 4.

**Discussion:** There are a large number of studies available on the knowledge, attitude and practice (KAP) analysis amongst health care workers, college students. But the studies targeting the school students to spread awareness and motivate them to donate blood are very few. In our study, two components from KAP analysis could be checked in the students. Practice analysis was not feasible as the students are underage and not eligible to donate blood.

A total of 77 students were enrolled in the age group of 16-18 years having 39 boys and 38 girls. The results have shown that only 54.4% students had awareness regarding the primary questions (Question numbers 1,2 3 and 4). The NACO [9] guidelines mention that the blood transfusion service is responsible and should ensure that the act of blood donation is safe and cause no harm to the donor. This is possible only if the donor is 100% aware of all the primary questions asked to them regarding the lower age limit, minimum weight of donor, minimum haemoglobin level and also how frequently males and females can donate blood. This study helps in spreading awareness through the questionnaire as well as motivating them through the communication material provided at the end.

In our study, question number 9 targets at the importance of knowing the blood type. Around 92 % students knew their blood group and 7.8% were unaware of their blood group. The test is essential as all blood types are not compatible and receiving blood that's incompatible with your blood type could trigger a dangerous immune response. Two students in the study have blood group B negative and AB negative. They were taken for one to one session where the significance of Rh factor was discussed with them.

Rh antigens are highly immunogenic. In contrast to the ABO system, anti-Rh antibodies are, normally, not present in the blood of individuals with D-negative RBCs, unless the circulatory system of these individuals has been exposed to D-positive RBCs through blood transfusion or pregnancy and can lead to hemolytic transfusion reaction, or hemolytic disease of fetus and newborn. For this reason, the Rh status has to be routinely determined in blood donors, transfusion recipients, and in mothers-to-be [11].

Knowledge of frequencies of the different blood groups is also very important for blood banks and transfusion service policies that could contribute significantly to the National Health System [12].

The average awareness for Secondary Questions is 37.3% which does not match the hypothesis 2. According to hypothesis 2, 50-60% students should know about the minimum need of drinking water before blood donation. The students should be aware of the fact that blood should not be donated during menstrual period as well as the composition of blood and the chronic illnesses during which one can donate blood. The knowledge of above said things will help the students for safe blood donation as these are the blood donor selection criteria according to NACO guidelines [9].

Results of questions 10 and 11 correspond with the hypothesis 4. Around 75.3% of students have seen someone from their family/friend donating blood. This highlights the interests of the students in this noble cause. The willingness to donate blood was seen in 88.3% of students, once they are eligible. They were informed that blood donation is a totally voluntary act and no inducement or remuneration is being offered [9].

The flyer with the right answers helped in imparting correct knowledge to the students. The general aspects of blood donation were being highlighted to motivate them with the motto of "No one shall die for want of Blood". This study targeted at the lack of knowledge and prevailing misconceptions regarding blood transfusions and formal or informal mechanisms to motivate and mobilize youth for becoming voluntary blood donors. Also, the practice on blood donation can be done in an effective way only if the school students have appropriate knowledge and attitude towards blood donation.

**Limitations**

1. The sample size of the study is small.
2. The aim of the study is to motivate the students and increase the awareness, so the same study needs to be planned in the future after conducting a few workshops.



## Conclusion

A considerable percentage of students have low awareness but a positive attitude towards blood donation. In spite of the positive attitude, the low awareness could lead to poor participation in blood donation once the students are eligible. Therefore, there is a critical need for training in the form of workshops, counseling and other activities in order to increase high school student's awareness and keep them motivated towards blood donation.

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## Annexure – I: Questionnaire

Name: -----

Age: -----

School: Sat Paul Mittal School

Gender: -----

Please put  $\sqrt{\quad}$  in front of the chosen answer

1. What is the lower age limit for blood donation in most countries?
  - a. 18 years
  - b. 21 years
  - c. Don't Know



2. What is the minimum weight of donor required for blood donation?
- a. 45-50 kg
  - b. 50-55 kg
  - c. Don't Know
3. What is the minimum haemoglobin level required for males and females for blood donation?
- |  |  |
|--|--|
| <b>A. Males</b>                        | <b>B. Females</b>                      |
| a. 12.5 g/dl <input type="checkbox"/>  | a. 12.5 g/dl <input type="checkbox"/>  |
| b. 13.5 g/dl <input type="checkbox"/>  | b. 13.5 g/dl <input type="checkbox"/>  |
| c. Don't Know <input type="checkbox"/> | c. Don't Know <input type="checkbox"/> |
4. How frequently males and females can donate blood?
- |  |  |
|--|--|
| <b>A. Males</b>                            | <b>B. Females</b>                          |
| a. Every 3 months <input type="checkbox"/> | a. Every 4 months <input type="checkbox"/> |
| b. Every 4 months <input type="checkbox"/> | b. Every 5 months <input type="checkbox"/> |
| c. Don't Know <input type="checkbox"/>     | c. Don't Know <input type="checkbox"/>     |
5. How much drinking water (minimum amount) should be provided to the donors before blood donation?
- a. Yes (500 ml)
  - b. Yes (1000 ml)
  - c. Don't Know
6. Can the girls donate blood during their menstrual cycle?
- a. Yes
  - b. No
  - c. Don't Know
7. Please put  $\checkmark$  in front of the choices included in the composition of blood?
- a. Red blood cells
  - b. White blood cells
  - c. Platelets
  - d. Plasma component which includes proteins, electrolytes and antibodies
  - e. Don't Know
8. Which of the following patients of chronic illnesses can donate blood?  
(Please put  $\checkmark$  in front of the choices)
- a. Well-controlled diabetes mellitus
  - b. Stable hypertension
  - c. Epilepsy
  - d. Don't Know
9. Do you know your blood type? Please mention
10. Have you seen anyone from your family/friend donating blood?
- a. Yes
  - b. No
11. Will you be willing to donate blood once you are eligible?
- a. Yes
  - b. No



**Annexure – II (Flyer)****‘No one shall die for want of blood’****Please put  $\checkmark$  in front of the chosen answer (Answer Key)****1. What is the lower age limit for blood donation in most countries?**

- d. 18 years
- e. 21 years
- f. Don't Know

**2. What is the minimum weight of donor required for blood donation?**

- d. 45-50 kg
- e. 50-55 kg
- f. Don't Know

**3. What is the minimum haemoglobin level required for males and females for blood donation?****A. Males**

- a. 12.5 g/dl
- b. 13.5 g/dl
- c. Don't Know

**B. Females**

- a. 12.5 g/dl
- b. 13.5 g/dl
- c. Don't Know

**4. How frequently males and females can donate blood?****A. Males**

- a. Every 3 months
- b. Every 4 months
- c. Don't Know

**B. Females**

- a. Every 4 months
- b. Every 5 months
- c. Don't Know

**5. How much drinking water (minimum amount) should be provided to the donors before blood donation?**

- a. Yes (500 ml)
- b. Yes (1000 ml)
- c. Don't Know

**6. Can the girls donate blood during their menstrual cycle?**

- a. Yes
- b. No
- c. Don't Know

**7. Please put  $\checkmark$  in front of the choices included in the composition of blood?**

- f. Red blood cells
- a. White blood cells
- b. Platelets
- c. Plasma component which includes proteins, electrolytes and antibodies
- d. Don't Know

**8. Which of the following patients of chronic illnesses can donate blood?****(Please put  $\checkmark$  in front of the choices)**

- a. Well-controlled diabetes mellitus
- b. Stable hypertension
- c. Epilepsy
- d. Don't Know



**9. Do you know your blood type? Please mention**  
-----**10. Have you seen anyone from your family/friend donating blood?**

- a. Yes   
b. No

**11. Will you be willing to donate blood once you are eligible?**

- a. Yes   
b. No

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**Information regarding Blood Donation (FLYER)****1. What is blood donation?**

Blood donation is a noble deed in which one person donates his/her blood to save other human lives.

**2. Is donating blood safe?**

It is a safe process using a specialized blood pack unit with a pre-attached needle to collect your blood. This bag is used only once and discarded, eliminating any chances of spread of infection.

**3. Is donating blood a painful thing?**

No. Blood donation is harmless, painless. The only discomfort is the first needle prick.

**4. Why should I give blood if I can afford to buy it?**

No one can either buy or sell blood. It is a free gift to patients from voluntary donors. Safe blood can only be assured by voluntary unpaid blood donors as the prevalence of blood borne infections is lowest in these donors.

**5. What do I get by donating blood?**

Blood donation is noblest of all because it saves life, gives you a feeling of satisfaction that your donation can save up to 4 lives.

**6. I am very busy, how and where can I donate blood?**

Donation of blood takes only 5-10 minutes. You can donate at any government/Private blood bank in your locality.

