



## Original Research Article

# Assessment of the knowledge about blood donation among medical students: Before and after implementing a designed teaching session about blood donation

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## ABSTRACT

**Background:** Human blood is most important body fluid in saving lives .Evidence indicates that there is a shortage of blood and blood products in many countries. This study aimed at assessing knowledge towards blood donation and its associated factors. With focus on encouraging voluntary blood donation. That's why stress should be given on voluntary, non - remunerated blood donation.

**Aims and Objective:** This study aims to determine knowledge about voluntary blood donation, and the objective was to educate undergraduate students about voluntary blood donation.

**Material and Methods:** Undergraduates who expressed their consent for participation were enrolled in the study. A pre- tested, structured questionnaire was used as a study tool. Baseline information were collected, a brief interactive awareness session, addressing voluntary blood donation was organized for the participants and their willingness to donate blood was again noted at the conclusion of the session.

**Results:** A total of five hundred undergraduate medical students enrolled , out of which 270 (54%) were male and 230 (46%) female. The overall knowledge of voluntary blood donation increased from 67% to 89.90% after educational intervention.

**Conclusion:** Undergraduate medical students had good baseline knowledge about blood donation and this further improved after blood donation educational intervention.

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## 1. Introduction

Human blood is most important body fluid in saving lives. The focus was on encouraging voluntary blood donation. National Voluntary Blood Donation Day is 1<sup>st</sup> Oct.<sup>1</sup> Voluntary unpaid blood donors has lowest prevalence of HIV, hepatitis viruses and other blood-borne infections.<sup>2</sup> That's why stress should be given on voluntary, non-remunerated blood donation.

Medical college students can serve as a readily available pool of voluntary blood donors for the attached medical college and hospitals. However, some studies have also shown poor blood donation practice among the students

in spite of relatively good knowledge of voluntary blood donation.

According to World Health Organization yearly blood donation should be 3-5%.<sup>3</sup> Blood can only be gained from generous donors.<sup>4</sup> Knowledge plays major role in blood donation.<sup>5</sup>

Worldwide studies regarding knowledge about blood donation shows.

Our aims and objectives were following:-

1. To determine the knowledge regarding voluntary blood donation among medical undergraduate students.
2. To educate medical undergraduate students about voluntary blood donation.

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	Regarding Knowledge about blood donation	Percentage (%)
1.	Gondar <sup>6</sup>	48.2
2.	Ambo <sup>7</sup>	40.4
3.	Samara <sup>8</sup>	54.0
4.	Woliyta Sodo <sup>4</sup>	82.6
5.	Harar <sup>9</sup>	43.5
6.	Saudi Arabia <sup>10</sup>	66.7
7.	Malaysia <sup>11</sup>	97.1
8.	Pakistan <sup>12</sup>	98.0
9.	Iran <sup>2</sup>	15.5

3. To assess the anticipated increase in knowledge of blood donation following one time health education intervention.

**2. Materials and Methods**

The study was conducted among undergraduate medical students of Bharti Vidyapeeth (DU) Medical College & Hospital, Sangli, in Maharashtra, July to September 2023. It was a cross-sectional study during which baseline knowledge about blood donation was assessed by the help of structured questionnaire and education about blood donation was provided for the participants and the knowledge to blood donation was reassessed.

*2.1. Sample size*

All the undergraduate medical students present, who expressed their consent for participation were enrolled in the study.

*2.2. Study methodology*

The reason and the process of the study was share to all students who were there in the appropriate classroom on survey day, and an informed consent for participation was taken. For data collection, a pretested, close-ended, structured questionnaire was distributed to the study participants. Basic information and information regarding knowledge of blood donation was extracted using the same questionnaire. After the collection of the baseline information, a brief interactive awareness session, along with a detailed PowerPoint presentation addressing knowledge of blood donation, was organized for the participants and their knowledge about blood donation was again noted at the end of the session.

*2.3. Data analysis*

The data were entered in and analyzed using the IBM SPSS Statistics for Windows, version XIX (IBM Corp., Armonk, N.Y., USA).

**3. Consent and Ethical Issues**

The approval of Institutional Ethics Review Committee was taken before starting the study.

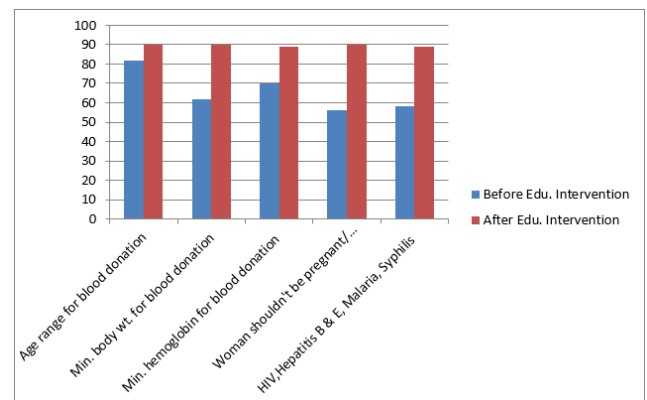
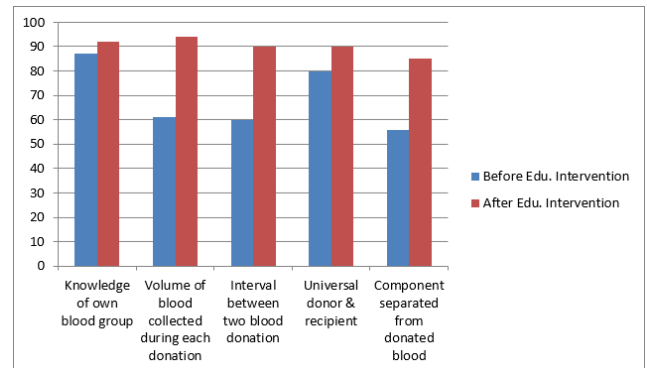
**4. Results**

A total of five hundred undergraduate medical students enrolled. The knowledge of blood donation was assessed by questions assessing general knowledge about blood donation, criteria for donor selection and knowledge regarding infections that can be transmitted through transfusion of contaminated blood.

Before and after educational intervention, analysis of the result was done and tabulated as under in the form of tables (A,B,C).

*4.1. Knowledge to donate blood after interactive session using a power point presentation*

An interactive session on voluntary blood donation was held for the participants, following which their knowledge about blood donation was reassessed.



The overall knowledge of voluntary blood donation increased from 67% to 89.9%.

		Educational Intervention	
		Before	After
<b>A</b>	<b>Knowledge about blood group and blood donation</b>	<b>Correct response (%)</b>	<b>Correct response (%)</b>
1.	Knowledge of own blood group	87	92
2.	Volume of blood collected during each donation	61	94
3.	Interval between two blood donations	60	90
4.	Universal donor and universal recipient	80	90
5.	Component separated from donated blood	56	85

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		Educational Intervention	
		Before	After
<b>B.</b>	<b>Knowledge regarding criteria of blood donation</b>	<b>Correct response (%)</b>	<b>Correct response (%)</b>
1.	Age range for blood donation	82	90
2.	Minimum body weight for blood donation	62	90
3.	Minimum hemoglobin for blood donation	70	89
4.	Woman should not be pregnant/ lactating	55	90

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		Educational Intervention	
		Before	After
<b>C</b>	<b>Knowledge regarding blood borne infections for which donor get tested.</b>	<b>Correct response (%)</b>	<b>Correct response (%)</b>
1.	HIV, Hepatitis B & E, Malaria, Syphilis	57	89

## 5. Discussion

Different scale of knowledge were noted. Devi et al. study reported 33.1%.<sup>13</sup> Similarly, by Bharatwaj et al.<sup>14</sup> Kowsalya et al.,<sup>15</sup> Bachhotiya et al. reported as 44.8%.<sup>16</sup> Furthermore, a high level of willingness to donate blood in future is expressed in most of the studies. These findings highlight the need to hold regular teaching and training programs for medical students aimed at educating them about safe and voluntary blood donation so that the gaps in knowledge can be bridged and the willingness to donate blood can be translated into actual blood donation. In a study by Kumari and Raina, the main reasons reported for not donating blood are fear of needles, concerns regarding adverse effects, disapproval of the family, and “never being asked for.”<sup>17</sup> Similar concerns have been expressed by respondents in various other studies.<sup>13,14,18</sup>

In our study participants were found to have good overall knowledge about blood donation (67%). Similar findings have been reported by Kumari and Raina (81.5%) among college students in Jammu and in a KAP study among Thai students by Wiwanitkit.<sup>17,19</sup> The participants in the present study had good knowledge about some donor selection criteria such as age range, minimum hemoglobin, and body weight required, however, showed a gap in knowledge about the criteria related to some common physiological (pregnancy, menstruation, etc.) and pathological states. Similarly, even though the participants were well informed about transfusion transmissible infections such as HIV and hepatitis B, they lacked relatively in knowledge about modes of transmission of malaria, syphilis, hepatitis B and

E, HIV etc. Hence, there is a need for organizing awareness generation activities regarding voluntary blood safety and donation for the medical students.

In this study, 87% of students were aware of their blood groups. Similar reported by Devi et al.,<sup>13</sup> Nwabeze et al. (99.6%),<sup>20</sup> and Agravat et al. (96%).<sup>21</sup> According to the students, the reasons for this high level of awareness regarding their own blood were that they were required to fill this information in their school health cards.

The most common source of information about blood donation reported by the study participants was from educational institutions such as school and college (74%), followed by television (36%), through blood donation camps (31%), newspapers (28%), internet (21%), friends (19%), and parents (17%). This highlights the fact that more emphasis should be given to educational institution-based awareness programs for blood donation and the inclusion of this topic in school and college curriculum.

## 6. Conclusion

Undergraduate medical students had good baseline knowledge about blood donation and this further improved after blood donation education intervention. That’s why it is important to educate potential blood donors for maintaining pool of voluntary blood donors.

Generalizing the findings of this study must be done with caution because it was carried out among medical students who were in their clinical stage of training.

## 7. Source of Funding

None.

## 8. Conflict of Interest

None.

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