

EXPLORING VOLUNTARY BLOOD DONATION AWARENESS AND PRACTICES AMONG MEDICAL STUDENTS: A STUDY AT VEER SURENDRA SAI MEDICAL COLLEGE & HOSPITAL, SAMBALPUR

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Abstract

Background: Blood transfusions are essential for health improvement, yet accessing safe blood remains a challenge. In India, the demand for blood is 8.5 to 10 million units annually, with a supply of only one million units. Before the National AIDS Control Programme (NACP) in 1992, blood donation in India was mostly familial or commercial. Despite the NACP's promotion of voluntary donation, a significant gap persists. Recognizing the youth as a key demographic, this study aims to assess knowledge, attitudes, and practices related to voluntary blood donation among VIMSAR Medical College students. **Materials and Methods:** A cross-sectional observational study was conducted among first-year MBBS students in November-December 2021. A validated semi-structured questionnaire collected data, analyzed using R software. A post-study lecture addressed knowledge gaps. **Result:** 156 students participated, with 57.1% males and 42.9% females. Knowledge about blood safety and donation was more comprehensive among those with a history of donation. Notably, 97.4% believed their blood could save lives, but awareness gaps existed. Positive attitudes towards blood donation were prevalent, with 94.9% expressing willingness to donate in the future. Only 12.2% had donated blood, citing factors like social media campaigns and the desire to help others. **Conclusion:** The study underscores the role of knowledge, opportunities, and motivation in shaping students' blood donation practices. Efforts should focus on consistent engagement, awareness enhancement, and incentivizing voluntary blood donation. Integrating blood donation topics into curricula and collaborating with national and international institutions can further amplify impact.

INTRODUCTION

Blood transfusions play a crucial role in enhancing health and saving the lives of patients; however, numerous individuals in need of transfusions face challenges in accessing safe blood promptly. Voluntary blood donations remain the sole lifeline for countless individuals requiring blood transfusions on a daily basis. The demand for blood in the country is estimated to be between 8.5 million and 10 million units per year, while the available supply is only one million units per year.^[1]

India shares similarities with many other nations where blood services encounter difficulties in ensuring an adequate blood supply, with demand

surpassing the available resources, and concerns persisting regarding the quality and safety of the blood. Before the launch of the National AIDS Control Programme (NACP) in 1992, blood donation in India was primarily a familial or commercial affair. Traditionally, family members would donate blood to one another, or unknown donors would earn money through blood donations. The Ministry of Health and Family Welfare's 2017 guidelines for national blood transfusion services emphasize that donor motivation should be carried out by community volunteers, utilizing various communication methods to attract potential donors to blood banks or donation camps.^[2]

The global promotion of voluntary blood donation gained popularity in India as well, following the implementation of the NACP. Various studies indicate a substantial gap between the supply and demand of blood. Compounding this issue, there is a lack of awareness and motivation among the educated segments of society, exacerbating the current crisis. The youth, being a pivotal demographic, represent the present and future source of a safe blood supply. Consequently, it is imperative to explore different factors contributing to voluntary blood donation. Knowledge, Attitude, and Practice (KAP) studies serve as a commonly employed tool to investigate various aspects of human behavior.^[3]

A KAP survey involves a representative study of a specific population to collect information on their understanding, beliefs, and actions related to a particular issue. In light of the aforementioned considerations and to address the existing knowledge gap, this study aims to assess the awareness, level of knowledge, and attitudes toward voluntary blood donation among students at VIMSAR Medical College. This information will be instrumental in developing strategies to raise awareness and encourage young people, including medical students, to contribute to blood donation initiatives in the country. Subsequently, tailored interventions can be designed to enhance blood donation practices among medical students and the general public.

Aims and Objectives

1. To assess the Knowledge, Attitude, and Practice (KAP) of Blood Donation among first-year MBBS students at Veer Surendra Sai Medical College & Hospital situated in Sambalpur, Odisha.
2. Offering health education to MBBS students concerning voluntary blood donation.

MATERIALS AND METHODS

In November-December 2021, a cross-sectional observational study was conducted among first-year undergraduate medical students at Veer Surendra Sai Medical College & Hospital in Sambalpur, Odisha. All first-semester students were included in the study without any sampling.

To assess knowledge, attitude, and practices related to blood donation, a semi-structured questionnaire was developed. The questionnaire design was informed by a literature review of similar studies within the department and consultation with senior faculty. A pilot study involving 30 individuals was conducted to validate the study protocol, determine the average time required for completing the questionnaire, and ensure its appropriateness and clarity for students. Based on the feedback received from the pilot study, necessary amendments were made to simplify and enhance the questionnaire's understandability. Researchers distributed the

questionnaires in lecture halls, and students took approximately 30 minutes to complete them. To maintain confidentiality, respondents' names were replaced with numbers.

Data analysis was performed using R software. Following the data collection, a lecture on blood donation was organized for the participants to address any knowledge gaps identified during the study.

Ethical Considerations: Approval for this study was obtained from the institutional ethical committee. The study's objectives were clearly communicated to the students, and their informed consent was obtained. Participation in the study was entirely voluntary.

RESULTS

A total of 156 students actively participated in the study, comprising 89 (57.1%) males and 67 (42.9%) females. The participants' ages ranged from 17 to 30 years, with a mean age of 18.9 years [Table 1]. Notably, students with a history of blood donation exhibited more comprehensive knowledge about blood safety and donation compared to those who had never donated. This difference was statistically significant. However, a substantial majority of participants did not possess complete knowledge regarding various aspects of voluntary blood donation. The primary motivation for their satisfaction with blood donation was the altruistic desire to help others and save lives.

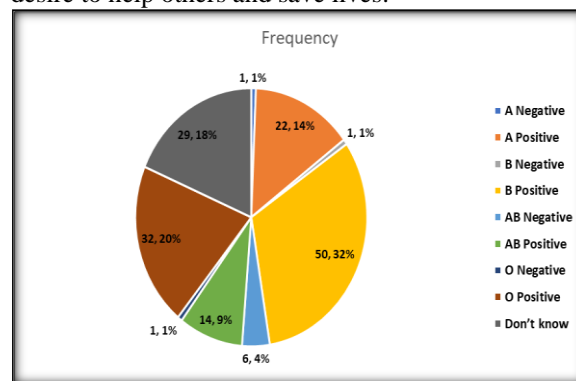


Figure 1: Distribution of blood groups as reported by the Study participants

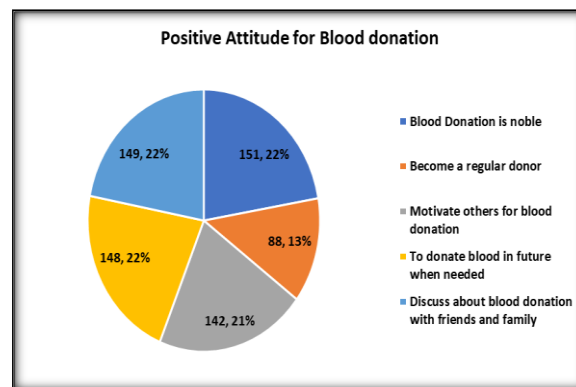


Figure 2: Attitude towards blood donation

Nearly all students (96.8%) regarded blood donation as a noble act of humanity, with 94.9% expressing their willingness to donate blood in the future. The majority exhibited a positive attitude towards blood donation, as they were willing to donate for anyone in need without expecting any post-donation rewards [Figure 2]. About 56.4% of the study subjects believed that voluntary blood donation is the optimal source of blood and blood products. Some noteworthy motivational factors for blood donation included social media campaigns, the altruistic intent to help others in need, and the

feeling of satisfaction after donation, as reported by donors.

Out of the 156 participants, 97.4% believed that their blood could save someone's life. However, only 17.3% were aware that one person's blood could benefit up to four individuals through different components. Additionally, 61.5% of participants correctly knew that blood donors also experience health benefits, while 63.5% were aware that human blood has no substitute [Table 2]. Notably, 18% of participants were unaware of their own blood group [Figure 1].

Table 1: Characteristics of study participants from Medical College

| Sociodemographic | | Frequency | Percentage |
|------------------|---------------|-----------|------------|
| Gender | Male | 89 | 57.1 |
| | Female | 67 | 42.9 |
| Marital status | Single | 149 | 95.5 |
| | Married | 7 | 4.5 |
| Residence | Rural | 48 | 30.8 |
| | Urban | 108 | 69.2 |
| Diet | Vegetarian | 61 | 39.1 |
| | Nonvegetarian | 95 | 60.9 |
| Alcohol | Yes | 4 | 2.6 |
| | No | 152 | 97.4 |
| Age (year) | 17-20 | 116 | 74.4 |
| | 21-24 | 35 | 22.4 |
| | 25-30 | 5 | 3.2 |

Table 2: Knowledge of study participants about blood donation

| Knowledge regarding blood donation | Positive response | Percentage |
|--|-------------------|------------|
| Age criteria | 33 | 21.2 |
| Weight criteria | 20 | 12.8 |
| Hemoglobin criteria | 51 | 32.7 |
| Duration from last donation | 57 | 36.5 |
| HIV status of donor | 152 | 97.4 |
| HbsAg status of donor | 127 | 81.4 |
| Menstruating women | 84 | 53.8 |
| Pregnant women | 137 | 87.8 |
| Lactating mother | 84 | 53.8 |
| Malaria patient | 124 | 79.5 |
| Dengue patient | 143 | 91.7 |
| Controlled diabetes | 67 | 42.9 |
| Controlled hypertension | 96 | 61.5 |
| Blood can save someone's life | 152 | 97.4 |
| One unit benefit 4 people | 27 | 17.3 |
| Blood donation has health benefit | 96 | 61.5 |
| Blood can't be substituted | 99 | 63.5 |
| Amount of blood during donation | 14 | 9.0 |
| Donor's blood tested before transfusion | 154 | 98.7 |
| Normal individual has enough blood to donate | 140 | 89.7 |
| Blood matching before transfusion | 142 | 91.0 |

Only 19 participants (12.2%) had donated blood before the study, with 3.8% having donated blood three or more times. This relatively low percentage may be attributed to factors such as the age of participants and a knowledge gap regarding the benefits and safety of the blood donation procedure.

DISCUSSION

Human blood, an indispensable and life-saving resource, holds the potential to save millions of lives when consistently available. Medical students, given their education and training, play a pivotal role in the country's blood transfusion services,

contributing significantly to the nation's healthcare system. The youth, particularly medical students, are a healthy, enthusiastic, and easily approachable group. If enlisted early, they can serve as both future blood donors and motivators, acting as valuable sources of information for the general public they interact with daily, including family members and neighbors.^[4] Therefore, early motivation and awareness initiatives are essential. However, various studies involving medical students have highlighted concerns about a lack of awareness and unsatisfactory voluntary blood donation practices among them. Potential factors contributing to this include misconceptions, perceived risks, and a lack

of motivation among potential donors. Despite having relatively good knowledge and a favorable attitude toward voluntary blood donation, poor blood donation practices persist among students.^[4] The theme for Blood Donor Day 2020, "Safe Blood Saves Life," emphasized the need for voluntary blood donation by healthy individuals. Replacement donors, contributing approximately 45% of blood donations in India, are individuals who donate blood to their family, friends, and relatives when needed. The World Health Organization (WHO) advocates discouraging replacement blood donation in favor of voluntary, non-remunerated blood donation. Since January 1998, paid/professional blood donation has been prohibited in India.^[5-6] The promotion of voluntary blood donation is integral to India's safe blood program, with National Voluntary Blood Donation Day celebrated on 1st October. Studies indicate that voluntary unpaid blood donors, motivated purely by altruism, exhibit the lowest prevalence of HIV, hepatitis viruses, and other blood-borne infections, compared to family or family replacement donors. Moreover, regular voluntary blood donation is associated with medical benefits, such as a lower incidence of acute myocardial infarction and increased insulin sensitivity.^[7]

The demand for safe blood remains high globally, despite collaborative efforts by various government and international agencies. It is generally recommended that 1-3% of the population should donate blood to meet a country's needs. The WHO aimed for 100% voluntary non-remunerated blood donation globally by 2020, with countries in the South East Asian Region striving to eliminate the culture of replacement donation. Joint efforts by medical and other colleges, including organizing blood donation camps, could create an encouraging environment for donation, attracting both medical and non-medical students.^[8-12]

Our findings align with Bharatwaj et al., who reported incomplete knowledge regarding various aspects of voluntary blood donation among participants. Surprisingly, 18% of our study subjects were unaware of their own blood group, higher than the findings of Sabu et al. However, a positive attitude towards blood donation was prevalent, with 96.8% considering it an honorable act beneficial to society, consistent with Bharatwaj et al.'s results.^[13-15]

To encourage non-donors with a positive attitude, regular motivation lectures and opportunities for blood donation should be provided. Conversely, non-donors with a negative attitude should be educated about the significance and health advantages of regular blood donation, dispelling misconceptions and apprehensions. Media, with its powerful influence, can play a positive role in promoting blood donation, using clear messages, photos of donors, good-natured slogans, and endorsements by well-known figures.^[16-18]

In Sambalpur, various organizations actively engage in connecting donors with those in need through real-time social media efforts. They conduct voluntary blood donation camps regularly, using a specialized vehicle equipped for awareness, education, promotion, and actual blood donation purposes. Notable reasons for not donating blood identified in our study include a lack of opportunity, unawareness about blood donation, fear of needles, the need to donate for friends/relatives in the future, parental restrictions, fear of anemia, and fear of weight loss.

During the COVID-19 pandemic, plasma donation played a vital role in treating patients. Increasing awareness about plasma donation can further protect lives.

CONCLUSION

The behavior and practices of students in relation to blood donation can be significantly influenced by the availability of appropriate opportunities, access to better information, a heightened sense of social responsibility, and other motivational factors. To foster a culture of regular voluntary blood donation (VBD) among students, efforts should prioritize consistent engagement rather than sporadic donation in response to specific transfusion needs.

Creating opportunities for blood donation is crucial, but it is equally imperative to enhance awareness of VBD. Information, Education, and Communication (IEC) activities should be intensified, and regular seminars should be conducted to raise awareness among medical students, encouraging voluntary blood donation and motivating others to follow suit. Engaging influential figures such as celebrities, religious leaders, regular peer donors, and individuals whose lives have been saved through blood donation can be instrumental in encouraging students to participate in blood donation campaigns. Strategies should be developed to incentivize students to donate blood voluntarily, including the integration of blood donation topics into existing curricula. Collaborative efforts with national and international institutions, along with mass media campaigns, can further amplify the impact of these initiatives.

Limitations

Several limitations are inherent in studies focusing on knowledge, attitudes, and practices. Responses may be influenced by social desirability biases, and there is the potential for both recall and interviewer biases. Additionally, Gorakhpur's multicultural nature and diverse population may limit the generalizability of the study's findings, as the participants were exclusively from one medical college. The present study may also face validity concerns and sample size limitations.

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