



MOTIVATION FOR VOLUNTARY BLOOD DONATION – THE NEED FOR PRE-COLLEGE COUNSELLING

Dr. Suganya Selvarajan^{1*}, Dr. T. Sankaranarayanan² and Dr. L. Senthilraja Perumal³

¹*Assistant Professor, Department of Microbiology, Government Sivagangai Medical College, Sivagangai, Tamil Nadu, India.

²Assistant Professor, Department of Microbiology, Government Thoothukudi Medical College, Thoothukudi, Tamil Nadu, India.

³Assistant Professor, Department of Geriatric Medicine, Government Tirunelveli Medical College, Tirunelveli, Tamil Nadu, India.

***Corresponding Author:** Dr. Suganya Selvarajan

*Assistant Professor, Department of Microbiology, Government Sivagangai Medical College, Sivagangai, Tamil Nadu, India.

Abstract

Voluntary blood donation is a crucial component of modern healthcare, yet many regions continue to face shortages due to insufficient participation, especially among the youth. This study explores the impact of pre-college counselling in enhancing students' awareness, correcting misconceptions, and motivating them to become future voluntary blood donors. Conducted among higher secondary and polytechnic students in the Sivagangai district of Tamil Nadu, the research employed pre- and post-counselling surveys, interactive awareness sessions, and group discussions to assess changes in knowledge, attitudes, and willingness to donate. The results demonstrated a significant improvement in students' understanding of blood donation procedures and eligibility, along with a notable shift in attitudes—marked by reduced fear and increased altruism. Most importantly, there was a considerable rise in the number of students expressing willingness to donate blood voluntarily in the future. These findings highlight the value of introducing structured counselling programs before college as a proactive strategy to build a well-informed and socially responsible pool of future donors. Early educational interventions not only address immediate gaps in donor recruitment but also ensure long-term sustainability in blood supply through youth engagement.

Keywords: Voluntary blood donation, adolescence, health education, pre-college counselling, altruism, blood bank awareness

Introduction

Blood, a critical fluid connective tissue, is required for a variety of medical procedures and crises. It is kept and administered in a variety of forms, including packed red blood cells (PRBCs), fresh frozen plasma (FFP), platelet concentrates, cryoprecipitate, and specific factor concentrates [1, 2]. These components are essential for addressing a wide range of ailments, including elective and emergency surgeries, trauma, and childbirth, as well as chronic illnesses such as anemia, bleeding disorders, and viral infections. Fresh frozen plasma is crucial for restoring coagulation factor deficiencies, such as those caused by poisoning. Blood transfusions are also essential in treating other medical conditions, including sickle cell anemia, renal disease, and the effects of cancer

chemotherapy [3, 4]. Despite the crucial need for blood, India has a continuous demand-supply mismatch. National cross-sectional research of five randomly selected states found a deficit of about 2.5 contributions per 1,000 eligible individuals, corresponding to over one million units per year. The anticipated clinical demand is 36.3 donations per 1,000 eligible populations, which is consistent with the World Health Organization's recommendation of 1-3% donor coverage to ensure an adequate blood supply [5, 6]. Every year, over 100 million blood units are donated worldwide, emphasizing the importance of a dependable blood bank network [7]. However, problems persist, including a lack of donor enthusiasm and concerns about the spread of blood-borne illnesses such as HIV/AIDS, hepatitis, and malaria, which can stymie blood donation initiatives [8]. Voluntary blood donation, motivated by charity, remains the most secure and sustainable source of blood. Motivating healthy people to become frequent voluntary donors is critical to improving the safety and sufficiency of the blood supply [9]. According to the Ministry of Health and Family Welfare (MOHFW), a person can give blood at the age of 18, as long as they meet criteria such as minimum body weight, hemoglobin levels, and the absence of infectious diseases and high-risk behaviours [5]. Therefore, early education about blood donation is critical to prepare prospective donors. Adolescence is a vital developmental stage with considerable physical, cognitive, and social changes. It is also a stage at which lifetime attitudes and actions are developed [10]. Unfortunately, this age group is being increasingly influenced by unhealthy lifestyles, such as bad eating habits and physical inactivity, which leads to obesity and other health hazards such as diabetes, hypertension, and psychological problems [11, 12]. Furthermore, global studies showed that the majority of teenagers do not exceed prescribed physical activity levels, which presents future public health issues [13]. This formative phase provides an exceptional opportunity to develop social responsibility and prosocial behaviours like altruism and community service [14]. Structured pre-college counselling can raise awareness about the benefits of voluntary blood donation and healthy living while also promoting moral development and social competence [15]. Participation in co-curricular programs such as Bharat Scouts and National Service Scheme (NSS) fosters leadership and community participation among young people [16]. This study aims to motivate pre-college students in Sivagangai district, Tamil Nadu, towards voluntary blood donation by enhancing their awareness of healthy habits, social responsibility, and the significance of blood donation. The objectives include increasing the number of voluntary donors, educating students about blood donation needs, and encouraging their active participation. Data were collected using pre- and post-counselling questionnaires, which assessed student's knowledge, attitudes, lifestyles, and socio-demographic factors to evaluate the effectiveness of the intervention.

Materials and Methods

Study Design: This study was designed as a cross-sectional, questionnaire-based interventional study aimed at assessing the impact of pre-college counselling on students' awareness, attitudes, and motivation towards voluntary blood donation.

Setting: The study was conducted in two educational institutions located in the Sivagangai District of Tamil Nadu: one higher secondary school and one polytechnic institute. These institutions were selected to represent different streams of pre-college education and to capture a diverse student population.

Sample Size and Participants: A total of 100 students participated in the study, comprising 50 students from the higher secondary school and 50 students from the polytechnic institute. The sample size was determined to provide a balanced representation across both educational settings and to allow for meaningful comparisons.

Study Period: The study was carried out over a two-month period, from June to July 2018.

Inclusion and Exclusion Criteria: Participants included students aged between 15 and 17 years who were currently enrolled in the selected institutions. Students younger than 15 years or 18 years and above were excluded to focus on the adolescent age group, which is critical for early intervention in health education and donor motivation.

Study Procedure:**1. Pre-Counselling Assessment:**

Prior to the counselling sessions, participants were given a standardized questionnaire to assess their baseline knowledge of blood donation, which included an understanding of blood groups, blood bank services, donation eligibility criteria, and the significance of voluntary donations. The questionnaire also inquired about students' lifestyle habits, such as food patterns, physical activity, and participation in extracurricular or community service activities. In addition, demographic data such as age, gender, habitat (urban/rural), parents' educational qualifications, and socioeconomic status were collected to investigate any relationships with awareness levels and attitudes.

2. Counselling Intervention:

Following the baseline assessment, students attended interactive counselling sessions conducted by trained facilitators knowledgeable in transfusion medicine and public health. The sessions covered key topics including:

- The critical need for voluntary blood donation in healthcare,
- Eligibility criteria and safety measures for donors,
- Benefits of donation for both donors and recipients,
- Common misconceptions and fears related to blood donation,
- The importance of healthy lifestyle habits such as balanced nutrition and regular physical activity in maintaining donor eligibility and overall well-being.

To reinforce learning, educational materials such as posters, pamphlets, and motivational videos were displayed and distributed. The sessions encouraged active participation, allowing students to ask questions and share their views.

3. Post-Counselling Feedback and Evaluation:

At the conclusion of the counselling intervention, students completed a post-session feedback form identical in structure to the initial questionnaire. This allowed for comparison and assessment of changes in knowledge, attitudes, and willingness to donate blood. Additionally, students' feedback on the counselling session's content, delivery, and impact was recorded to evaluate its effectiveness and areas for improvement.

Data Analysis:

Pre- and post-counselling questionnaire responses were analyzed using descriptive statistics for demographics and baseline data, and inferential tests (paired t-tests, chi-square) to assess changes in awareness and attitudes.

Ethical Considerations

The study was conducted in accordance with ethical guidelines for research involving human participants. Prior approval was obtained from the Institutional Ethics Committee (IEC approval number: 1402/ME1/2018). Written informed consent was secured from all participating students and, where applicable, from their parents or guardians. Confidentiality and anonymity of the participants were maintained throughout the study, and participation was entirely voluntary with the option to withdraw at any time without penalty.

Results**A. Demographic Details**

A total of 100 students participated in the study, with 50 students from a higher secondary school and 50 from a polytechnic institute in Sivagangai District. Among the school participants, 14 (28%) were female and 36 (72%) were male, while all 50 polytechnic participants were male. Overall, the gender distribution was 14% female and 86% male (Figure 1). Regarding their habitat, 55% of the participants were from rural areas, and 45% from urban settings (Figure 2). Parental educational qualifications varied considerably between the groups; approximately 70% of school students reported having at least one parent who was a graduate, compared to only 12% among polytechnic students (Figure 3). Socioeconomic status showed that most school students belonged to the middle-income group (MIG), followed by the low-income group (LIG), whereas polytechnic students

primarily came from the low-income group. Only nine students across both groups belonged to the high-income group (HIG) (Figure 4).

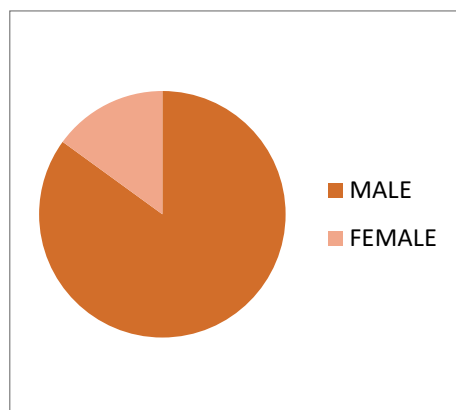


Fig: 1 Gender wise distribution

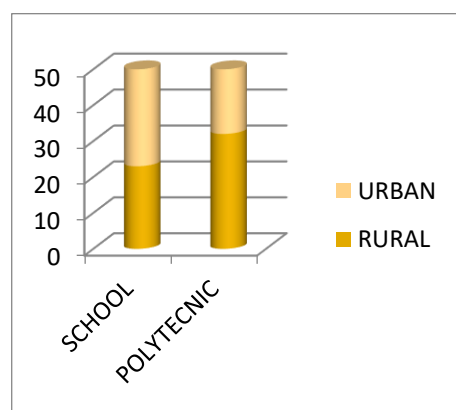


Fig: 2 Distribution of Parental Graduates in School vs. Polytechnic Student Groups

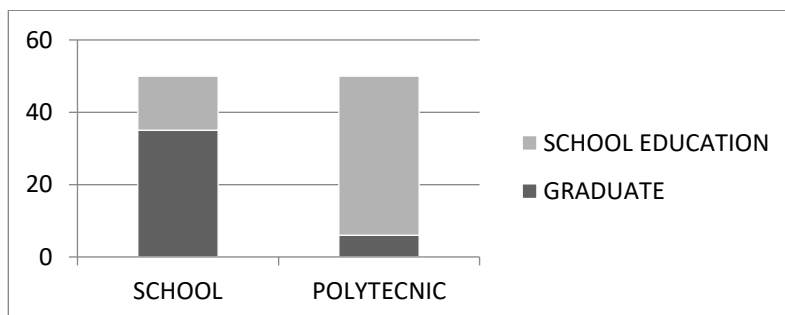


Fig: 3 Parental Educational Qualifications by Student Category (School vs. Polytechnic)

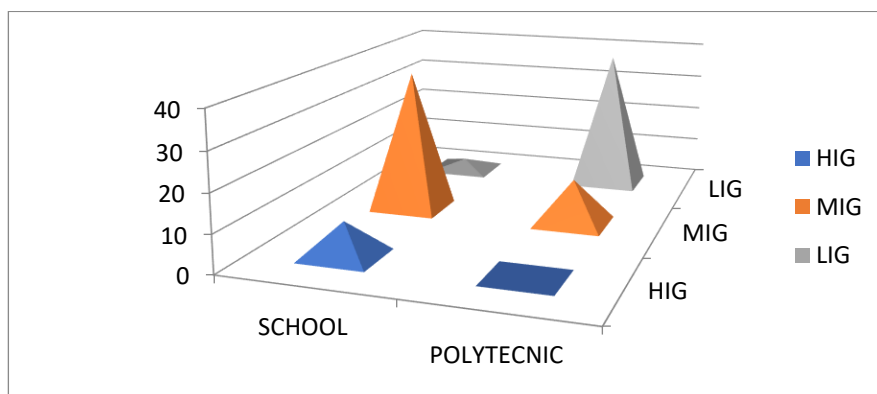


Fig: 4 Socioeconomic Status of School and Polytechnic Students

B. Awareness on Blood Donation

All 100 participants, from both school and polytechnic settings, demonstrated clear awareness of the essential role of blood in medical emergencies. They unanimously acknowledged that blood is irreplaceable and must be donated voluntarily by humans to meet clinical demands (Figure 5).

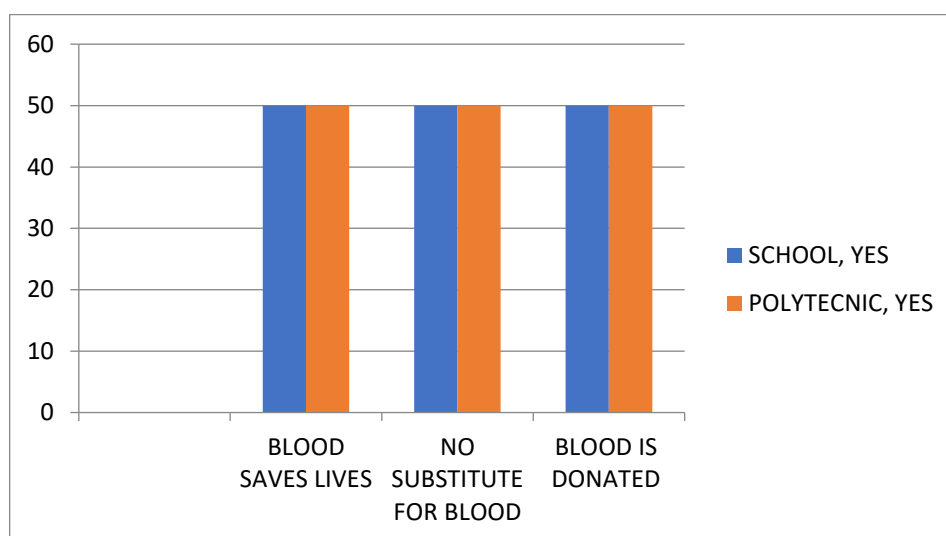


Fig: 5 Awareness of Blood Donation and its Importance among Participants

C. Knowledge of Blood Bank and Its Services

When questioned about blood bank functions, 28 school students (56%) and 21 polytechnic students (42%) expressed confidence in the blood bank's role in blood collection, storage, and the issuance of matched blood to patients (Figure 6). However, awareness regarding screening tests conducted at blood banks for infectious diseases was notably poor; 91% of participants were unaware of these safety measures, despite knowing that individuals with sexually transmitted infections (STIs) are not eligible to donate blood.

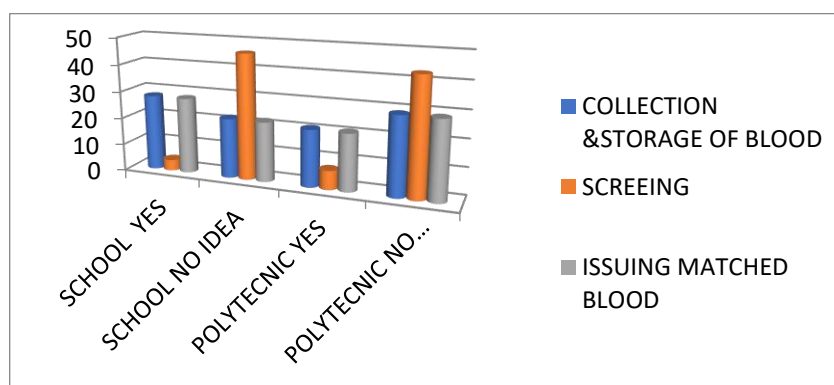


Fig: 6 Knowledge of Blood Bank Functions and Services among Participants

D. Criteria for Blood Donation

Students' knowledge of donor eligibility criteria showed significant gaps. Regarding the minimum age requirement, 41% answered correctly, while 36% responded incorrectly, and 23% admitted they had no idea (Figure 7). For minimum weight criteria, only 23% answered correctly, 42% incorrectly, and 35% had no knowledge. Knowledge about the minimum hemoglobin level required for donation was slightly better, with 39% correct responses, 37% incorrect, and 24% uncertain. Importantly, all participants correctly recognized that blood donors must be free from sexually transmitted diseases.

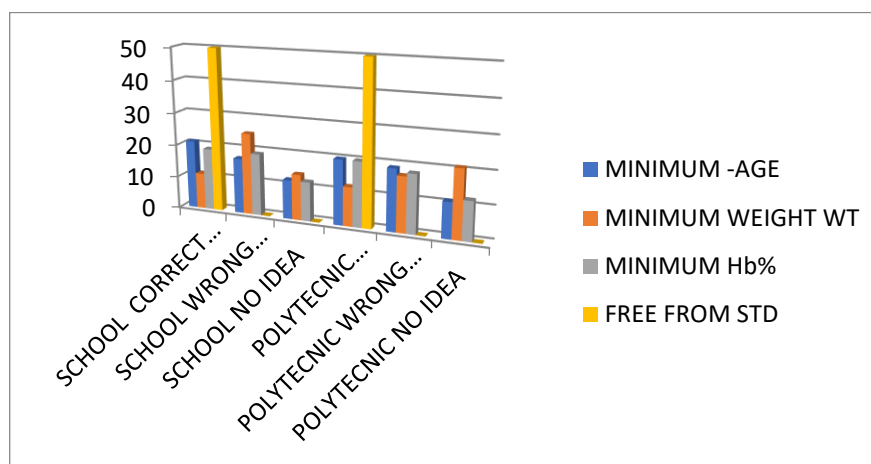


Fig: 7 Knowledge of Blood Donor Eligibility Criteria among Participants

E. Lifestyle of Participants

Lifestyle assessments revealed that 75% of students regularly consumed junk food, with only 3% actively avoiding it. Physical activity varied: 18% engaged in daily sports or exercise, 70% participated occasionally, and 12% reported rarely being physically active. Social involvement was relatively high, with 76% enrolled in community or social service activities such as Bharat Scouts and Guides or the National Service Scheme (NSS). Dietary habits showed that only 35% regularly consumed iron-rich foods. Notably, 85% of students spent considerable time playing video games or using mobile screens (Figure 8). Regarding prosocial behaviour, three-quarters of the participants reported a spontaneous willingness to help others, whereas one-quarter would assist only when requested.

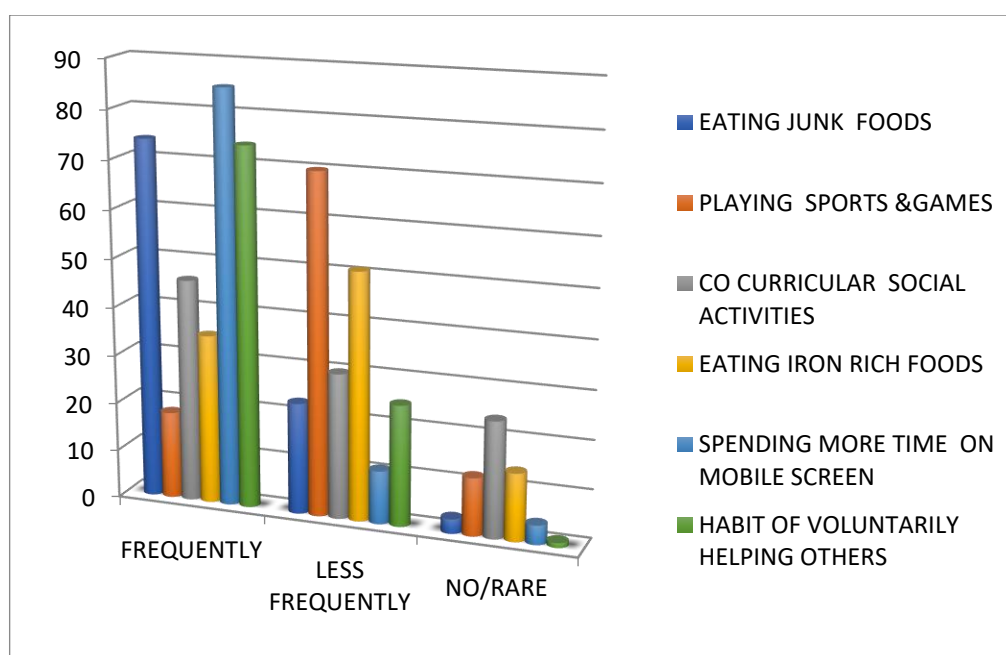


Fig: 8 Lifestyle Habits and behaviours of Participants

F. Impact of Counselling and Feedback

Post-counselling feedback indicated a strong positive response. Ninety percent of students reported that they understood and enjoyed the sessions, while the remaining 10% sought further clarification on certain topics. Importantly, all students expressed a desire to develop into socially responsible individuals with strong ethical and moral values, alongside a commitment to healthier lifestyles. Following the sessions, 84% of students indicated a willingness to become voluntary blood donors.

When asked to rate the counselling session, both the higher secondary and polytechnic students predominantly gave the highest marks, reflecting strong approval of the content and delivery.

Discussion

Demographic Influence on Blood Donation Awareness

The high proportion of male students in the polytechnic institute may have influenced the gender-based awareness disparity observed in this study. While school students of both genders attended the session voluntarily, the polytechnic institution's male-only admission policy resulted in an unbalanced gender distribution among participants. Onel *et al.*, (2024) has consistently demonstrated that females exhibit higher altruistic tendencies and awareness regarding blood donation than males [17]. Addressing this disparity through targeted awareness campaigns could be beneficial.

Rural vs. Urban Blood Donation Awareness

The predominance of rural students in the study (55%) highlights a potential gap in accessibility and awareness of blood banks. With most blood banks situated in urban centres, rural students may have experienced firsthand the challenges associated with accessing blood during emergencies. Recent studies from Keyser *et al.*, (2025) has indicated that rural populations often face greater difficulties in locating donation centres, leading to lower donation rates compared to urban populations [18]. To bridge this gap, mobile blood donation units and awareness drives targeting rural regions should be prioritized.

Parental Educational Background and Influence

A higher proportion of school students reported having graduate parents compared to polytechnic students, suggesting that parental education may be a crucial determinant in shaping awareness. Literature from Robaina-Calderín *et al.*, (2024) supports this observation, highlighting that parental involvement and education play an essential role in fostering pro-social behaviours, including voluntary blood donation [19]. Ensuring parental engagement in health awareness programs could further amplify the impact of pre-college counselling efforts.

Challenges in Blood Donation and Lifestyle Considerations

Students from middle-income backgrounds showed substantial interest in blood donation but cited various barriers such as time constraints, work commitments, and lack of accessible donation sites. Additionally, deferral reasons such as anemia, recent tattooing, and alcohol intake were commonly observed. Prior studies from Neumann *et al.*, (2018) confirm that work-life imbalance and convenience significantly influence blood donation participation [20]. Addressing these barriers through improved accessibility and flexible donation schedules could enhance participation rates. Moreover, students expressed strong awareness of their dietary and lifestyle choices post-counselling. Half of the participants pledged to adopt iron-rich diets and engage in regular physical activity. These findings align with a study conducted by Kurhaluk *et al.*, (2024) which demonstrated that dietary changes and fitness improvements correlate with enhanced eligibility for blood donation [21]. Reinforcing these behaviours through periodic follow-ups and awareness sessions could sustain their motivation.

Social Responsibility and Psychological Impact

All students emphasized the need to be socially interactive and responsible, recognizing their role in the community. Chen *et al.*, (2024) observed that blood donors often exhibit lower levels of anxiety and depression than non-donors due to the psychological benefits associated with altruism [22]. The concept of a positive psychological feedback loop among donors, as highlighted in previous research, underscores the potential mental health benefits of regular blood donation.

Comparative Studies and Recommendations

Previous studies conducted in India and globally have demonstrated varying levels of awareness and motivation among adolescents. For instance, Nair *et al.*, 2020 study in Kerala reported a lower percentage of students willing to donate blood compared to the findings in Sivagangai [23]. This discrepancy suggests that regional differences and socio-economic factors play a crucial role in shaping donation behaviours. Additionally, international research supports the effectiveness of early educational interventions in fostering blood donation habits. A study in the United States (Viswanathan *et al.*, 2012) revealed that students exposed to structured pre-college counselling exhibited a 47% increase in actual blood donation within five years of eligibility [24]. These findings reinforce the necessity of sustained awareness programs tailored to adolescent groups.

Conclusion

This study underscores the significant impact of pre-college counselling on motivating adolescents toward voluntary blood donation. Early interventions play a pivotal role in addressing misconceptions, enhancing awareness, and fostering a sense of social responsibility. The findings reveal that structured education not only improves knowledge but also positively influences attitudes, lifestyle choices, and willingness to donate. Furthermore, integrating blood donation awareness into school and polytechnic curricula can cultivate a sustainable pool of informed donors, contributing to public health improvements. Encouraging altruistic behaviour during adolescence strengthens community engagement and enhances individual well-being. By prioritizing adolescent education in this domain, society can ensure a steady and reliable blood supply, mitigating shortages and supporting medical advancements. Future research should explore long-term behavioural outcomes and strategies to optimize youth engagement in voluntary blood donation programs.

Funding Statement

The authors declare that no external funding was received for this research.

Conflict of Interest

The authors declare that there are no conflicts of interest in this work.

References:

1. Kafley P, John S. Blood Components and Their Contents. In: Critical Care Hematology 2024 Oct 26 (pp. 163-170). Singapore: Springer Nature Singapore.
2. Ajmani PS, Ajmani PS. Transfusion of blood & Its components. Immunohematology and Blood banking: Principles and Practice. 2020:49-71.
3. Garrigan E, Mehta S, McCartney SL. Rational Use of Blood Products in the Intensive Care Unit. In: The Pharmacist's Expanded Role in Critical Care Medicine: A Comprehensive Guide for Practitioners and Trainees 2025 Apr 1 (pp. 1463-1491). Cham: Springer Nature Switzerland.
4. Downey LA, Rollins MR, Miller BE. Coagulation, Bleeding, and Blood Transfusion. Gregory's Pediatric Anesthesia. 2020 Apr 15:247-75.
5. Mammen JJ, Asirvatham ES, Lakshmanan J, Sarman CJ, Mani T, Charles B, Upadhyaya S, Rajan S. A national level estimation of population need for blood in India. Transfusion. 2021 Jun;61(6):1809-21.
6. Mammen JJ, Asirvatham ES, Lakshmanan J, Sarman CJ, Pandey A, Ranjan V, Charles B, Mani T, Khaparde SD, Upadhyaya S, Rajan S. The clinical demand and supply of blood in India: A National level estimation study. PLoS One. 2022 Apr 6;17(4):e0265951.
7. Beyene GA. Voluntary blood donation knowledge, attitudes, and practices in Central Ethiopia. International journal of general medicine. 2020 Mar 4:67-76.
8. Heimer R. The policy-driven HIV epidemic among opioid users in the Russian Federation. Current HIV/AIDS Reports. 2018 Jun;15:259-65.
9. Gasparovic Babic S, Krsek A, Baticic L. Voluntary Blood Donation in Modern Healthcare: Trends, Challenges, and Opportunities. Epidemiologia. 2024 Dec 17;5(4):770-84.

10. Mohammed S, Essel HB. Motivational factors for blood donation, potential barriers, and knowledge about blood donation in first-time and repeat blood donors. *BMC hematology*. 2018 Dec;18:1-9.
11. Agustina R, Meilianawati, Fenny, Atmarita, Suparmi, Susiloretni KA, Lestari W, Pritasari K, Shankar AH. Psychosocial, eating behaviour, and lifestyle factors influencing overweight and obesity in adolescents. *Food and Nutrition Bulletin*. 2021 Jun;42(1_suppl):S72-91.
12. Kansra AR, Lakkunarajah S, Jay MS. Childhood and adolescent obesity: a review. *Frontiers in pediatrics*. 2021 Jan 12;8:581461.
13. Guthold R, Stevens GA, Riley LM, Bull FC. Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1· 6 million participants. *The lancet child & adolescent health*. 2020 Jan 1;4(1):23-35.
14. Ewest T. The prosocial leadership development process as a means to prepare the next generation of organizational leaders. *On the horizon*. 2018 Nov 26;26(3):225-37.
15. Dorle A, Gajbe U, Singh BR, Noman O, Dawande P. A review of amelioration of awareness about blood donation through various effective and practical strategies. *Cureus*. 2023 Oct 12;15(10).
16. Sekhar K, Sharma S, Thockchom RS, Thakur A. Civic Engagement of Student Youth in India through National Service Scheme (NSS). *JOURNAL OF SOCIAL WORK & SOCIAL DEVELOPMENT*.
17. Önel A, Konu-Kadirhanogullari M, Firat-Durdukoca S. Determining the Relationship between Blood Donation and Altruism Level. *International Journal of Contemporary Educational Research*. 2024;11(4):470-8.
18. Keyser RS, Li DL, Kimber E, Berman B, Kerbage G, Valero M, Li YJ, Ukuku AM. Exploring the blood donation problem in the us and the use of emergent and disruptive technologies to attract new donors. *International Journal of Research in Industrial Engineering*. 2025 Jun 1;14(2):256-80.
19. Robaina-Calderín L, Melián-Alzola L, Martín-Santana JD. Blood donation as a public service: Young citizens' prosocial behaviour. *International Public Management Journal*. 2024 Mar 3;27(2):259-83.
20. Neumann JL, Mau LW, Virani S, Denzen EM, Boyle DA, Boyle NJ, Dabney J, De KeselLofthus A, Kalbacker M, Khan T, Majhail NS. Burnout, moral distress, work–life balance, and career satisfaction among hematopoietic cell transplantation professionals. *Biology of Blood and Marrow Transplantation*. 2018 Apr 1;24(4):849-60.
21. Kurhaluk N, Gradziuk M, Tkaczenko H. Optimisation of Blood Donor Nutrition: Blood Donor Health Improvement Studies. *Cell Physiol. Biochem*. 2024 Nov 1;58:756-806.
22. Chen L, Zhou Y, Zhang S, Xiao M. How anxiety relates to blood donation intention of non-donors: The roles of moral disengagement and mindfulness. *The Journal of Social Psychology*. 2024 Jan 2;164(1):43-58.
23. Nair CC, Mahadeven S, Asheeta A, Hima CS, Beena MI, Tom A. Knowledge, attitude and practices about blood donation among pharmacy students: A cross sectional study in South Kerala. *transfusion*. 2020 Sep 21;3:4.
24. Viswanathan M, Golin CE, Jones CD, Ashok M, Blalock SJ, Wines RC, Coker-Schwimmer EJ, Rosen DL, Sista P, Lohr KN. Interventions to improve adherence to self-administered medications for chronic diseases in the United States: a systematic review. *Annals of internal medicine*. 2012 Dec 4;157(11):785-95.