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KNOWLEDGE AND ATTITUDES TOWARD VOLUNTARY BLOOD DONATION AMONG FULL-TIME STUDENTS AT THAI BINH MEDICAL COLLEGE IN THE ACADEMIC YEAR 2025–2026

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ABSTRACT

Objective: To assess knowledge and attitudes toward voluntary blood donation and identify related factors and barriers among full-time students at Thai Binh Medical College.

Methods: A cross-sectional study with quantitative and qualitative components was conducted among 383 full-time students at Thai Binh Medical College from December 2025 to March 2026. Data were collected using a structured and pre-tested questionnaire. Quantitative data were analyzed using SPSS version 25.0 with descriptive and analytical statistics.

Results: The mean age of participants was 19.4 ± 1.9 years, and 72.3% were female. Overall, 90.1% of participants had adequate knowledge regarding voluntary blood donation, with a mean knowledge score of 9.02 ± 1.82 points. Correct response rates were high for most common blood donation questions, particularly regarding minimum weight eligibility (89.3%), blood donation interval (85.9%), and transfusion-transmitted infections (95.8%). Positive attitudes toward voluntary blood donation were observed in 88.3% of participants, with a mean attitude score of 9.71 ± 2.82 points. Most participants were willing to donate blood voluntarily (86.2%) and support friends and relatives participating in blood donation activities (89.6%). Major barriers to blood donation were relatively low; however, 37.3% of participants reported lack of confidence regarding their eligibility for blood donation, and 20.1% considered blood donation procedures to be time-consuming.

Conclusion: Students at Thai Binh Medical College demonstrated generally good knowledge and positive attitudes toward voluntary blood donation. Continued communication and educational interventions are needed to improve specific knowledge gaps and reduce barriers related to blood donation participation.

Keywords: Voluntary blood donation; knowledge; attitude; barriers; students; Vietnam.

1. INTRODUCTION

Blood transfusion is an important therapeutic intervention that contributes significantly to patient treatment and public health protection, helping save millions of lives worldwide each year [1]. Nevertheless, ensuring a safe and sufficient blood supply remains a major challenge globally and in Vietnam. The development of a stable pool of voluntary blood donors from low-risk populations is considered a key strategy to maintain transfusion safety and meet increasing clinical demands. According to WHO recommendations, at least 2% of the population should participate in blood donation annually to ensure adequate blood reserves [2]. In Vietnam, although more than 1.4 million units of blood were collected in 2020 and voluntary donors accounted for 99% of donations, the current blood supply still satisfies only about 70%–75% of treatment needs [3]. Young people account for more than 60% of blood donors in Vietnam; however, blood donation among students is often temporary and campaign-oriented rather than sustained over time [4].

Improving voluntary blood donation among students requires not only maintaining repeat donors but also strengthening knowledge and promoting positive attitudes toward blood donation among those who have never donated before. Previous studies in Vietnam have mainly focused on knowledge, attitudes, and practices related to voluntary blood donation, while limited research has explored factors associated with blood donation behaviors and barriers among students. Thai Binh Medical College is a health sciences institution where students actively participate in voluntary blood donation campaigns; however, no study has comprehensively assessed students' knowledge, attitudes, and barriers regarding blood donation. Therefore, this study was conducted to assess knowledge and attitudes toward voluntary blood donation among full-time students at Thai Binh Medical College and to identify factors and barriers associated with blood donation behaviors.

2. MATERIALS AND METHOD

2.1. Study design, settings, and participants

A cross-sectional study with quantitative and qualitative components was conducted among full-time students at Thai Binh Medical College from December 2025 to March 2026. The study aimed to assess knowledge, attitudes, and barriers related to voluntary blood donation. Eligible participants were full-time students who agreed to participate in the study. Students with reactive blood

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screening results for HIV, HBV, HCV, or syphilis were excluded.

2.2. Sample size and sampling techniques

The quantitative sample size was calculated using the formula for estimating a population proportion with a 95% confidence level, 5% margin of error, and an estimated proportion of 0.451 from a previous study. The minimum required sample size was 383 students, and all eligible participants were recruited using convenience sampling. For the qualitative component, purposive sampling was used to recruit 10 students for in-depth interviews.

2.3. Variables

The study collected information on demographic characteristics, history of blood donation, sources of blood donation information, knowledge, attitudes, and barriers related to voluntary blood donation. Knowledge included eligibility criteria, blood donation intervals, risks of transfusion-transmitted infections, and health effects of blood donation. Attitudes were assessed using a 5-point Likert scale, while barriers included concerns related to health, donation procedures, healthcare workers, family influence, and access to information.

2.4. Data collection procedures

Data were collected using a structured and pre-tested questionnaire adapted from previous studies and national blood transfusion guidelines. The questionnaire was pilot-tested among 30 students and demonstrated good reliability with a Cronbach's alpha of 0.884. Participants completed the questionnaire after providing informed consent. In-depth interviews were conducted using a semi-structured interview guide and audio-recorded with participants' permission.

2.5. Statistical analysis

Quantitative data were cleaned, coded, and analyzed using SPSS version 25.0. Categorical variables were presented as frequencies and percentages, while continuous variables were summarized using means and standard deviations. Chi-square tests and odds ratios with 95% confidence intervals were used to identify factors associated with knowledge, attitudes, and blood donation behaviors. Qualitative data were transcribed, coded, and analyzed by thematic approach.

2.6. Ethical considerations

The study was approved by the Ethics Committee of Thang Long University under approval number 05/2025/HĐĐĐ dated November 8, 2025. Participation was voluntary, and all information was kept confidential and used only for research purposes.

3. RESULTS

Among 383 study participants, the mean age was 19.4 ± 1.9 years, ranging from 18 to 31 years. Female students accounted for the majority of participants (72.3%), and most participants were of Kinh ethnicity (97.7%). First-year students represented the largest proportion (50.1%). Regarding blood donation history, 41.5% had never donated blood, while 30.8% had donated once and 27.7% had donated two or more times. A total of 80.4% of participants had previously searched for information about voluntary blood donation, mainly through blood donation volunteer clubs (55.9%), social media (37.3%), and family or friends (33.4%). Most participants reported willingness to donate blood voluntarily (86.2%), and 74.4% knew locations for voluntary blood donation (Table 1).

Table 1. General characteristics and blood donation information of study participants (n=383)

Characteristics	Group	n	%
Age (years)	Mean ± SD	19.4 ± 1.9	-
	Minimum	18	-
	Maximum	31	-
Sex	Male	106	27.7
	Female	277	72.3
Ethnicity	Kinh	374	97.7
	Other	9	2.3
Academic year	First year	192	50.1
	Second year	98	25.6
	Third year	93	24.3
Number of blood donations	Never donated	159	41.5
	Donated once	118	30.8
	Donated ≥ 2 times	106	27.7
Searched for voluntary blood donation information		308	80.4
Sources of blood donation information	Blood donation volunteer clubs	214	55.9
	Social media	143	37.3
	Family and friends	128	33.4
	Online newspapers	60	15.7
	Television/ loudspeakers	45	11.7
	Printed newspapers	28	7.3
	Leaflets/ posters	20	5.2
Willingness to donate blood voluntarily		330	86.2
Knowledge of blood donation locations		285	74.4

Most participants demonstrated good knowledge regarding voluntary blood donation. Correct response rates were high for minimum weight eligibility (89.3%), the most common ABO blood group in Vietnam (86.9%), minimum interval between donations (85.9%), risks of transfusion-transmitted infections during donation (84.9%), health effects of blood donation (87.2%), hydration before and after donation (89.6%), eligibility of individuals with cardiovascular diseases (92.4%), eligibility of individuals infected with HBV/HCV (95.8%), and the possibility of acquiring HIV/HBV/HCV during donation (88.8%). However, only 12.3% correctly identified the eligible age range for blood donation in Vietnam. Overall, 90.1% of participants had adequate

knowledge regarding voluntary blood donation, with a mean knowledge score of 9.02 ± 1.82 points (Table 2).

Table 2. Knowledge regarding voluntary blood donation among study participants (n=383)

Characteristics	Group	n	%
Minimum weight eligible for blood donation	Female ≥42 kg, male ≥45 kg*	342	89.3
	Other/incorrect answers	41	10.7
Eligible age for blood donation in Vietnam	18–60 years*	47	12.3
	Other/incorrect answers	336	87.7
Most common ABO blood group in Vietnam	Blood group O*	333	86.9
	Other/incorrect answers	50	13.1
Common blood donation volume in Vietnam	250 mL*	342	89.3
	Other/incorrect answers	41	10.7
Minimum interval between two whole blood donations	Three months*	329	85.9
	Other/incorrect answers	54	14.1
Risk of transfusion-transmitted infections during blood donation	No*	325	84.9
	Yes/Do not know	58	15.1
Effect of blood donation on health	Good for health*	334	87.2
	Other/incorrect answers	49	12.8
Need to drink more water before and after donation	Yes*	343	89.6
	No/Do not know	40	10.4
Cardiovascular disease patients can donate blood	No*	354	92.4
	Yes/Do not know	29	7.6
Individuals infected with HBV/HCV can donate blood	No*	367	95.8
	Yes/Do not know	16	4.2
Possibility of acquiring HIV/ HBV/HCV during blood donation	No*	340	88.8
	Yes/Do not know	43	11.2
Knowledge score classification	Adequate knowledge	345	90.1
	Inadequate knowledge	38	9.9

Overall, participants demonstrated positive attitudes toward voluntary blood donation. High proportions of participants agreed or strongly agreed that blood donation is a good activity (90.8%), necessary (83.0%), and beneficial for receiving health check-ups (87.2%). Most participants expressed willingness to donate blood (85.4%), continue donating in the future (86.5%), support relatives and friends in donating blood (89.6%), and encourage others to participate in voluntary blood donation (88.3%). In addition, 91.9% reported willingness to honestly declare their health status before donation. Overall, 88.3% of participants were classified as having positive attitudes toward voluntary blood donation, with a mean attitude score of 9.71 ± 2.82 points (Table 3).

Table 3. Attitudes toward voluntary blood donation among study participants (n=383)

Characteristics	Group	n	%
Blood donation is a good activity	Agree/Strongly agree	348	90.8
	Neutral/Disagree/ Strongly disagree	35	9.2
Blood donation is necessary	Agree/Strongly agree	318	83.0
	Neutral/Disagree/ Strongly disagree	65	17.0
Interested in voluntary blood donation	Agree/Strongly agree	325	84.9
	Neutral/Disagree/ Strongly disagree	58	15.1
Voluntary blood donation provides health check-ups	Agree/Strongly agree	334	87.2
	Neutral/Disagree/ Strongly disagree	49	12.8
Blood donation is everyone's responsibility	Agree/Strongly agree	280	73.1
	Neutral/Disagree/ Strongly disagree	103	26.9
People who do not donate blood are criticized/ looked down upon	Agree/Strongly agree	43	11.2
	Neutral/Disagree/ Strongly disagree	340	88.8
Willingness to participate in voluntary blood donation	Agree/Strongly agree	327	85.4
	Neutral/Disagree/ Strongly disagree	56	14.6
Support friends and relatives to donate blood	Agree/Strongly agree	343	89.6
	Neutral/Disagree/ Strongly disagree	40	10.4
Willingness to encourage relatives and friends to donate blood	Agree/Strongly agree	338	88.3
	Neutral/Disagree/ Strongly disagree	45	11.7
Willingness to continue donating blood in the future	Agree/Strongly agree	331	86.5
	Neutral/Disagree/ Strongly disagree	52	13.5
Agreement with doctors' advice after blood donation	Agree/Strongly agree	343	89.5
	Neutral/Disagree/ Strongly disagree	40	10.5

Characteristics	Group	n	%
Honest declaration of health status before donation	Agree/Strongly agree	352	91.9
	Neutral/Disagree/ Strongly disagree	31	8.1
Attitude classification	Positive attitude	338	88.3
	Negative attitude	45	11.7

Most participants reported positive perceptions regarding voluntary blood donation. High proportions believed that blood donation creates positive feelings and mental comfort (94.3%), provides health benefits (93.2%), stimulates new blood production (97.1%), and offers opportunities for health consultation and examination (98.7%). Confidence in healthcare workers' professional competence and attitudes was also very high, accounting for 99.2% and 99.5%, respectively. Additionally, 89.3% felt confident about meeting blood donation eligibility criteria, while 37.3% reported feelings of inadequacy regarding their eligibility. Family support for voluntary blood donation was reported by 98.7% of participants, and 86.9% stated that they had adequate understanding of blood donation information (Table 4).

Table 4. Barriers and related factors regarding voluntary blood donation among study participants (n=383)

Characteristics	n	%
Blood donation creates positive feelings and mental comfort	361	94.3
Blood donation provides many health benefits	357	93.2
Blood donors receive health consultation and examination	378	98.7
Blood donation helps stimulate new blood production	372	97.1
Blood donation procedures are time-consuming	77	20.1
Healthcare workers have good professional competence	380	99.2
Healthcare workers have good attitudes and behaviors	381	99.5
Confidence in meeting blood donation eligibility criteria	342	89.3
Feeling inadequate regarding blood donation eligibility	143	37.3
Family members have correct knowledge about blood donation	361	94.3
Family members support voluntary blood donation	378	98.7
Adequate understanding of voluntary blood donation information	333	86.9

4. DISCUSSION

The present study showed that knowledge regarding voluntary blood donation among students at Thai Binh Medical College was generally good. Most participants correctly answered common questions related to blood donation, particularly minimum weight eligibility (89.3%), the most common ABO blood group in Vietnam (86.9%), minimum interval between blood donations (85.9%), risks of transfusion-transmitted infections (84.9%), and health effects of blood donation (87.2%). Overall, 90.1% of participants had adequate knowledge regarding voluntary blood donation, with a mean knowledge score of 9.02 ± 1.82 points. This result was higher than findings reported by Đào Thị Hồng Hạnh (46.9%) [5], Uma S (79.4%) [6], Nguyễn Hữu Tới (72.7%) [7], Trần Minh Dũng (41.4%) [8], and Ngô Mạnh Quân (30.7%) [9]. The higher level of knowledge observed in the present study may be explained by the study population consisting of health sciences students who had greater exposure to blood donation information through academic activities, school campaigns, volunteer clubs, and social media platforms.

Knowledge related to blood donation eligibility and safety was also relatively high in this study. The proportions of participants correctly identifying that individuals with cardiovascular diseases and HBV/HCV infection were not eligible for blood donation were 92.4% and 95.8%, respectively, while 88.8% understood that blood donation does not cause HIV, HBV, or HCV infection. These findings were higher than those reported by Nguyễn Hữu Tới [7] and Đào Thị Hồng Hạnh [5], although slightly lower than the findings of Trần Minh Dũng regarding HBV/HCV-related eligibility [8]. The high awareness observed in this study reflects the effectiveness of communication and educational activities related to blood donation and transfusion-transmitted infections among medical students.

The present study also demonstrated high awareness regarding the recommended interval between blood donations, with 85.9% of participants correctly identifying the minimum interval between two whole blood donations. This proportion was considerably higher than those reported by Nguyễn Hữu Tới (29.8%) [7], Đào Thị Hồng Hạnh (23.2%) [5], and Uma S (51.2%) [6]. In addition, 87.2% of participants recognized that blood donation is not harmful to health. This result was slightly higher than the findings of Đào Thị Hồng Hạnh (85.2%) [5] and Trương Thị Kim Dung (75.1%) [10], although lower than those reported by Trần Minh Dũng (91.5%) [8] and Sana Saleem (93.4%) [11]. These findings suggest that current communication strategies and increasing access to health information through mass media and social networks may contribute to improved understanding of blood donation among students.

Despite the generally good knowledge level, some important gaps remained. Only 12.3% of participants correctly identified the eligible age range for voluntary blood donation in Vietnam, and only 4.7% knew that blood donation volume could be 350 mL rather than only 250 mL. Similar limitations were also reported in previous studies [6, 12]. These findings indicate that although students possess good general knowledge regarding blood donation, some specific technical aspects related to donation criteria and procedures are still not fully understood. Therefore, future communication programs should place greater emphasis on these specific topics to further improve students' understanding.

Regarding attitudes toward voluntary blood donation, the present study found that students demonstrated highly positive attitudes. A large proportion agreed that blood donation is a good activity (90.8%), necessary (83.0%), and associated with health benefits such as health check-ups (87.2%). In addition, 86.2% expressed willingness to voluntarily donate blood, while 86.5%

reported willingness to continue donating blood in the future. The overall proportion of participants with positive attitudes was 88.3%, with a mean attitude score of 9.71 ± 2.82 points. This result was higher than findings reported by Đào Thị Hồng Hạnh (75.8%) [5], Mishra (81.4%) [13], and Ngô Mạnh Quân [9]. According to the Theory of Planned Behavior proposed by Ajzen, knowledge and access to information may influence behavioral intentions and future participation in voluntary activities [14]. The positive attitudes observed in this study may therefore contribute to sustained voluntary blood donation behaviors among students.

The present study also found strong support for voluntary blood donation from participants' social environment. Most participants reported willingness to support and encourage friends and family members to donate blood, accounting for 89.6% and 88.3%, respectively. These findings were higher than those reported by Hoàng Văn Phóng [15] and Ngô Mạnh Quân [9], although slightly lower than Nguyễn Hữu Tới [7]. Family support and social encouragement are important determinants of blood donation behavior and may positively influence individuals' willingness to donate blood repeatedly. Furthermore, 91.9% of participants reported willingness to honestly declare their health conditions before donation, which is an important factor for ensuring blood safety and protecting donor health. This result was higher than the finding reported by Mishra (84.6%) [13].

Regarding barriers to voluntary blood donation, the present study found that most participants reported relatively few major barriers. Only 20.1% considered blood donation procedures to be time-consuming, while 37.3% lacked confidence regarding their eligibility for blood donation. In contrast, nearly all participants expressed satisfaction with healthcare workers' professional competence (99.2%) and attitudes (99.5%). These findings were more favorable than those reported by Ngô Mạnh Quân [9] and Nguyễn Văn Như [16], who identified waiting time and dissatisfaction with healthcare workers as important barriers to repeated blood donation. In addition, only 13.1% of participants reported inadequate understanding of blood donation information, which was lower than findings reported by Nguyễn Hữu Tới [7] and Ngô Mạnh Quân [9]. These results suggest that improved communication activities, supportive educational environments, and positive experiences during blood donation campaigns at Thai Binh Medical College may help reduce barriers and promote sustained participation in voluntary blood donation.

5. CONCLUSION

Students at Thai Binh Medical College demonstrated generally good knowledge and positive attitudes toward voluntary blood donation. Most participants were willing to donate blood and support blood donation activities, while barriers to donation were relatively low. However, some limitations in specific knowledge and concerns regarding donation eligibility still existed, indicating the need for continued communication and education programs to promote voluntary blood donation among students.

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