Original Research Article

Knowledge, attitude, and practice of blood donation among undergraduate students in Enugu, Nigeria – A cross-sectional study

Abstract

Background: Blood donation is crucial in saving lives, as blood cannot be manufactured artificially and can thus be obtained only from human blood sources. Voluntary blood donation is the cornerstone of a safe and adequate supply of blood and blood components.

Method: we conducted a cross-sectional descriptive study among 300 undergraduate students at Enugu State University College of Medicine Parklane, Enugu, Nigeria to access their knowledge, attitude, and practice of blood donation. Data was analyzed using multivariable logistics regression to identify factors associated with blood donation practice.

Results: The majority of the students had good knowledge of blood donation and it was revealed that the initial source of information was mostly from school (37.7%), 89.0% participants knew their blood group, and 98.3% were aware of infections through blood donation. Also, the attitude of our respondents towards blood donation revealed that the majority (95.0%) agreed blood donation saves life, that blood donation is good (91.0%), and voluntary blood donation (84.7%) is the best source of donor blood, most were indifferent to paid donation. Knowing owns blood group, having a positive attitude towards blood donation, and willingness to donate in the future were significantly associated with blood donation practice.

Conclusion: Hence, there is a need for adequate enlightenment campaigns and health education on the need for voluntary blood donation to improve knowledge of, change attitudes towards voluntary blood donation, and ultimately encourage undergraduate students in developing countries to donate blood.

Keywords: Blood donation, voluntary donors, Undergraduate students, Nigeria

Introduction

Blood donation is crucial in saving lives, as blood cannot be manufactured artificially and can thus be obtained only from human blood sources [1].Voluntary blood donation is the cornerstone of a safe and adequate supply of blood and blood components. It contributes to saving millions of lives each year in both routine and emergency situations [2,3]. Blood donation occurs when a person voluntarily has a blood drawn and used for transfusions and or made into a biopharmaceutical medication by a process called fractionation (separation of whole blood components) [3,4]. Donated blood plays an essential role in the management of bleeding during

surgeries, accidents, deliveries, bleeding peptic ulcer, liver diseases, lung diseases, cancers, blood diseases such as hemophilia, severe anemia, thalassemia, and newborn baby with blood diseases and burns [5].

Blood scarcity is frequently encountered in hospitals and is due to an imbalance between the increasing demand for safe blood and blood products on the other hand and failure to organize regular blood supply due to misconception perceived harms and risks and lack of motivation among potential donors [5,6]. Uncontrolled bleeding remains the leading cause of morbidity and mortality, accounting for more than 468,000 deaths per year [1,7–9]. The need for blood and blood products for lifesaving medical and surgical care continues to grow globally [2–4,6,10]. In low-income countries with limited diagnostic and treatment options, the majority of transfusions are prescribed for the treatment of complications during pregnancy and childbirth, the management of severe childhood anemia, trauma, and congenital blood disorder [11]. To meet these needs, more people must come forward to give blood voluntarily and regularly [1].

Voluntary donation is free and uncoerced blood donation without receipt of any cash or kind payment [1]. It is the cornerstone of a safe and adequate supply of blood and blood component [1,5]. There is a serious need to improve the recruitment and retention of voluntary donor population to ensure a suitable safe blood transfusion practice. Thus, young and college students particularly from medical college can be a very good source of quality blood if they are motivated and are willing to be voluntary blood donors as they are more influenced by their peers than by middle aged people [12]. Hence, we sought to understand the level of knowledge, attitude, and practice of blood donation, and associated factors among the undergraduate students. Our findings could improve awareness of the importance of blood donation and address potential doubts among potential donors, especially among young people who are the most likely blood donors. This could improve voluntary blood donation leading to less blood scarcity, reduce catastrophic healthcare expenditure incidence, and reduce morbidity and mortality [1,11,13–17]. Our study could also enable health facilities' address blood donor's misperceptions and misgivings during blood donation

Methods

Study design and period

This is a cross-sectional descriptive study conducted in June 2022 among undergraduate students at Enugu State University (ESUT) Teaching Hospital, Parklane, Enugu, Enugu State, Nigeria. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline was used to ensure appropriate reporting of our study's design, conduct and findings [18]

Study setting

Enugu State is one of the 36 states in Nigeria, located at 6030'N 7030'E, and bordered by Abia State and Imo State to the south, Ebonyi State to the east, Benue State to the northeast, Kogi State to the northwest and Anambra to the west. Enugu State is further divided into 17 local government areas (LGAs), four of which are predominantly urban (Enugu North, Enugu East, Enugu South, and Nsukka) and the rest are rural [19,20]. Each LGA is further divided into wards. Enugu State's 2020 population is 4,769,916, with most of the population living in urban centres in Enugu and Nsukka [20]. It is predominantly inhabited by the Igbos. The major occupations are trading, services, farming, and manufacturing activities [19]. ESUT is one of the six tertiary institutions in Enugu, established in 1979 [21]. The College of Medicine at Parklane, Enugu is one of the two campuses of the university and instructs about 1,600 undergraduate students in medicine (535 students), nursing (204 students), medical laboratory sciences (515 students), and anatomy (352 students).

Study participants

All consenting medical, nursing, or health sciences College of Medicine students who were available during the survey period were eligible to participate. All first-year students were excluded from the study.

Sample size

The sample size for the survey was calculated based on a single proportion formula based on previous similar study among undergraduate students in Ebonyi State which estimated 69% [15]. Based on a design effect (DEFF) of 1.05 obtained by pretesting the questionnaire, significance of 5.0%, precision (margin of error) of 5.0%, the estimated minimum sample was 273. This was then inflated by 10% to 300 to account for non-response.

Sampling procedure

A multistage sampling was used to identify the students to be interviewed. In the first stage, each department was divided into strata: 5, 4, 3, and 2 stratafor medicine, medical laboratory sciences, anatomy, and nursing students, respectively, based on the number of levels or classes in each department. In each stratum, 22 students were identified using a random sampling in a 1:1 male to female ratio (excluding nursing and medicine departments which had a predominance of female students). Next, a systematic random sampling technique was used to select the respondents. The number of students in each stratum (or class) was recorded. By dividing this number by 22, a sampling interval was obtained. The index student was selected by a simple random sampling. Identified students in each stratum who met the inclusion criteria were recruited. The inclusion criteria were every available consenting student. Exclusion criteria were students who refused consent and first-year students.

Data collection

The questionnaires were paper-based and administered in English. It is a self-administered and semi-structured consisting of four sections: Socio-demographic data, Knowledge of blood donation, Attitude towards blood donation, and Previous practice of blood donation. The questionnaire was prepared considering the recommended blood donation criteria, the national blood donation practices, and previous studies [9,15,22,23]. The questions were constructed in an understandable sequence. The study questionnaires were piloted on 20 students to ensure internal validity. The validity and reliability of the instrument were ascertained prior to final administration. The Cronbach alpha correlation was 0.86. Data collection was directly supervised by four of the authors with technical support from the senior author (Professor Chika N. Onwasigwe).

Study variables

Socio-demographic information: This information included students' sex/gender, students' age in years, marital status, class level, department, religion, and denomination (Christian students only).

Students' knowledge of blood donation: we first assessed students' general familiarity with blood donation and their source of information about blood donation. This was followed by eight questions on the knowledge of blood group, knowledge on whether a person can be infected by receiving blood transfusion, diseases transmissible through blood transfusion, person that should donate blood, volume of blood that should be collected in each blood donation session, how often an individual can donate, and benefits of blood donation.

Students' attitude to blood donation: we assessed students' attitude to blood donation with a five-point Likert type scale – strongly disagree, disagree, indifferent, agree and strongly agree, and eight statements: "Blood donation makes one weak", "Blood donation makes one loose height", "Blood donation is good", "Voluntary donor is the best source of donor blood", "Paid or remunerated donor is not a safe source of donor blood", "Blood donor can contract infection before and after blood donation", "Blood donor falls sick before and after blood donation", and "Patient's relatives should be asked to donate blood".

Students' practice of blood donation: we then assessed participants' previous blood donation practices, reason for donating blood, reason for not donating blood, frequency of blood donation, frequency of donating blood in the last five years, experience after donating blood, willingness to donate blood again the future, overall willingness to donate, reason for not willing to donate blood in the future, and whether willing to encourage relatives and friends to donate blood in the future

Statistical analysis

We entered data into Microsoft Excel® for cleaning before transferring to IBM SPSS® version 25.0 for statistical analyses. 100% stacked bars were prepared using Microsoft Excel. Frequency and percentage were used to describe the data and Chi-square test was used to test for statistical significance. Scores for each knowledge domain were summed up to obtain an aggregate score for these knowledge domains. T-test was used to assess for statistical difference in the mean scores for knowledge scores. Students' attitude to blood donation were dichotomized; strongly disagree, disagree, and neither agree nor disagree responses were aggregated into one group while agree and strongly agree responses were aggregated into another group. Chi-Square analysis was used to assess the attitudinal difference between the two groups of students.

Finally, we performed multivariable logistics regression analyses to evaluate for the factors associated with blood donation. We included previous blood donation practices in the last 2 years as the outcome variable for the model and included knowledge on blood donation, attitude towards blood donation, and socio-demographic characteristics as control variables. Every correct question was scored 1, while every incorrect question was scored 0. Scores greater than or equal to 50% were considered adequate, while scores less than 50% were considered poor. For every positive statement, strongly agree was scored 5, agree 4, indifferent 3, disagree 2, strongly disagree 1. For every negative statement, strongly agree was scored 1, agree 2, indifferent 3, disagree 4, strongly disagree 5. Scores greater than or equal to 50% were considered adequate, while scores less than 50% were considered poor. $P<0.05$ was used to define statistical significance, and all tests were two-tailed.

Results

Socio-demographic characteristics of undergraduate students

Out of 300 administered questionnaires, all 300 were correctly filled and considered for analysis yielding a response rate of 100%. Over half of the students were females (59.7%), and majority were aged 20-24 years (70%), with a mean (standard deviation) of 22.48 (± 2.5) years – **Table 1**. Majority of the students were single (95.4%) and Christians (98.3%). Among the Christian denominations, the Roman Catholics (55.1%) and the Jehovah's witness (3.4%) made up the majority and least groups. Study participants were equally represented from each year of study

Knowledge of blood donation among undergraduate students

Majority of the responders were O positive – **Figure 1**. Majority of the responders first learnt about blood donation in school (37.7%) and an overwhelming majority of students were aware their own blood group (89.0%) – **Table 2**. Most students know that people could be infected with human immunodeficiency virus (HIV) and Hepatitis B virus by receiving blood transfusion, but less than half knew of the risk of infection with cytomegalovirus (37.3%), hepatitis C virus (37.3%), malaria 32.7%), and syphilis (25.3%). Majority of the participants agreed that the most eligible blood donors were the healthy people 233(77.7%) while the old people were the least eligible 1(0.3%). Although most students did not know the volume of blood collected in each donation session (65.7%), the duration of a blood donation session (64.0%), nor how often an individual can donate blood (53.3%), an overwhelming majority know that blood donation saves lives (95.0%) – **Table 2**.

Attitude towards blood donation among undergraduate students

While an overwhelming majority of students agree that blood donation is good (91.0%), majority of the participants agreed that blood donation makes one weak (58.4%) but disagree that the same blood donation makes one loose height (84.3%) – **Figure 2**. Although majority of the responders also agreed that voluntary blood donation is the safest source of blood (84.7%), majority of the participants were indifferent about remunerated blood donation not being a safe source of blood donation (40.0%). Most participants agreed that patients' relatives should be asked to donate blood (65.7%).

Blood donation practice among undergraduate students

Most students have never donated blood (71.3%). Of those that have donated blood, overwhelming majority were voluntary donation (95.3%) – **Table 3**. Majority of the participants that donated in the past had only donated once (60.5%) but the experience during this donation episode was mostly neither satisfying nor unsatisfying (37.2%). Among those that have never donated blood, a majority reported that they have never been approached to donate (51.7%)

Factors associated with blood donation practice among undergraduate students

Multivariable logistics regression analysis showed that sex/gender (AOR = 0.84, 95% CI = 0.44 – 1.61), age (AOR = 1.61, 95% CI = 0.71 – 3.63), marital status (AOR = 1.80, 95% CI = 0.33 – 9.69), religion (AOR = 1.01, 95% CI = 0.08 – 12.26), year of study (AOR = 0.59, 95% CI = 0.29 – 1.17), and overall knowledge of blood donation (AOR = 1.58, 95% CI = 0.79 – 3.16) were not significantly associated with voluntary blood donation – **Table 4**. However, students whose first knowledge of blood donation was in school (AOR = 0.35, 95% CI = 0.15 – 0.82) and social/mass media (AOR = 0.24, 95% CI = 0.09 – 0.66) were less likely to have voluntarily donated blood. On the other hand, students who knew their own blood group (AOR = 9.74, 95% CI = 1.99 – 47.75) and had a positive attitude towards blood donation (AOR = 2.20, 95% CI = 1.06 – 34.58) were significantly more likely to voluntarily donate blood.

Discussion

Our study determined the level of knowledge of blood donation, assessed the attitude towards blood donation and identified the factors associated with voluntary blood donation among the undergraduate students in ESUT College of Medicine, Parklane Enugu. Majority of undergraduate students are aware of blood donation. This was expected given that these are undergraduate students in academic training to become healthcare professionals. This finding was similar to findings in other studies among undergraduate students in Ebonyi State (Nigeria), Lagos State (Nigeria), and Pakistan where 86.7%, 88.5%, and 92% were aware of blood donation, respectively [12,15,16], but different from findings in Ethiopia (48.2%) and India (42.7%) which showed low knowledge of blood donation among undergraduate health science students [10,17]. The high level of education among study participants could also explain why a very high proportion of the students were aware of their blood groups. Interestingly, this high knowledge was not significantly associated with actual blood donation practice, similar to findings in India, Nigeria, and Ethiopia [10,15,17].

Our study, however, showed a mixed attitude to blood donation among undergraduate students. While majority of students show positive to voluntary blood donation, a majority were indifferent to paid donation. This is paradoxical given that our study also indicates that these students were aware of the high risk of infection associated

with paid blood donation [5,11]. Our findings are contrary to study findings in Spain and Portugal [24], Tanzania [3], India [6,17,25], and Pakistan [26]. However, the most common reason that most students did not donate blood was because they were not asked to donate blood. This suggests an inadequate blood donation drive particularly in university communities, as similarly reported in other studies [26]. In any case, interventions should focus on specific theoretical and practical training programs and educative actions should contribute to a greater awareness, motivation, and sensitise students to blood donation.

Our study findings suggest that knowing one owns blood group and willingness to donate blood in the future was significantly associated with the blood donation practice, similar to findings in other studies in Tanzania [3]. The odds of blood donation practice were nine times more likely for those students who knew their own blood group compared to their counterparts who did not. Likewise, the odds of blood donation practice were 31 times more likely for those students who were willing donate blood in their future compared to their counterparts who did not. Willingness to voluntarily donate blood to a relative or anyone was a factor significantly associated with an increased chance of blood donation. This is again similar to the Tanzanian study among university students [3]. Such altruistic behaviour must be cultivated as it has been shown to influence voluntary blood donation and retention of blood donors [24,25,27]. Regular campaign targeting young people, especially university students, to make them aware of existing shortage of blood [28].

The current study has several limitations, such as being a single-centre study and sampling a population that is relatively more informed on blood donation compared to the general population. Due to these limitations, the study findings may not be generalizable to the general population. Despite these limitations, our findings have some implications for health education and blood donation campaigns among young people, particularly university students. Our study findings suggests that health education and blood donation campaigns should not only be designed at improve knowledge on the importance of blood donation butmust also be designed to change attitudes towards actual blood donation. Including actual experiences of patients saved from voluntarily donated blood such as excerpts from patients, doctors, and healthcare professions in the blood donation campaigns could fundamentally change attitudes towards blood donation. Our study also suggests need to improve the blood donation experience through initiatives that allays fear for needles, eliminate screening costs, and streamline the process to reduce time spent, while establishing positive inspiring rewards donors can share on social media and professional profiles could go a long way in young people, including students, to repeat donations.

Conclusions

Majority of undergraduate students in Enugu, Nigeria had good knowledge of blood donation but only a minor proportion has ever donated blood, however, majority were willing to donate blood in the future. While overall knowledge of blood donation is good, attitude towards donation is disappointing, which is the major barrier to the practice of blood donation among the students. There is the need to employ proven health promotion techniques in health education and blood donation campaigns to improve attitudes towards blood donation targeting undergraduate students in developing countries who are overwhelmingly willing to donate blood.

Declarations

Ethics approval and consent to participate

Ethical approval for the study was obtained from the Ethical Committee of the ESUT College of Medicine on 28 April 2022.

We obtained informed verbal consent from each student before participating in the study. Verbal consent was deemed appropriate and approved by the ethics committee. Informed verbal consent consisted of a description of the objectives of the study, assurance of confidentiality of personal information and a specific request for permission to conduct the interview. We obtained consent in English for all participants. There was no gift reward for participating in the study. We removed all patient identifiers prior to statistical analysis.

Consent for publication

Not applicable

Availability of data and materials

The dataset generated and analyzed in this study is freely available from the corresponding author on reasonable request.

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Figure 1: Blood group and Rhesus factor of undergraduate students in Enugu, Nigeria, June 2022

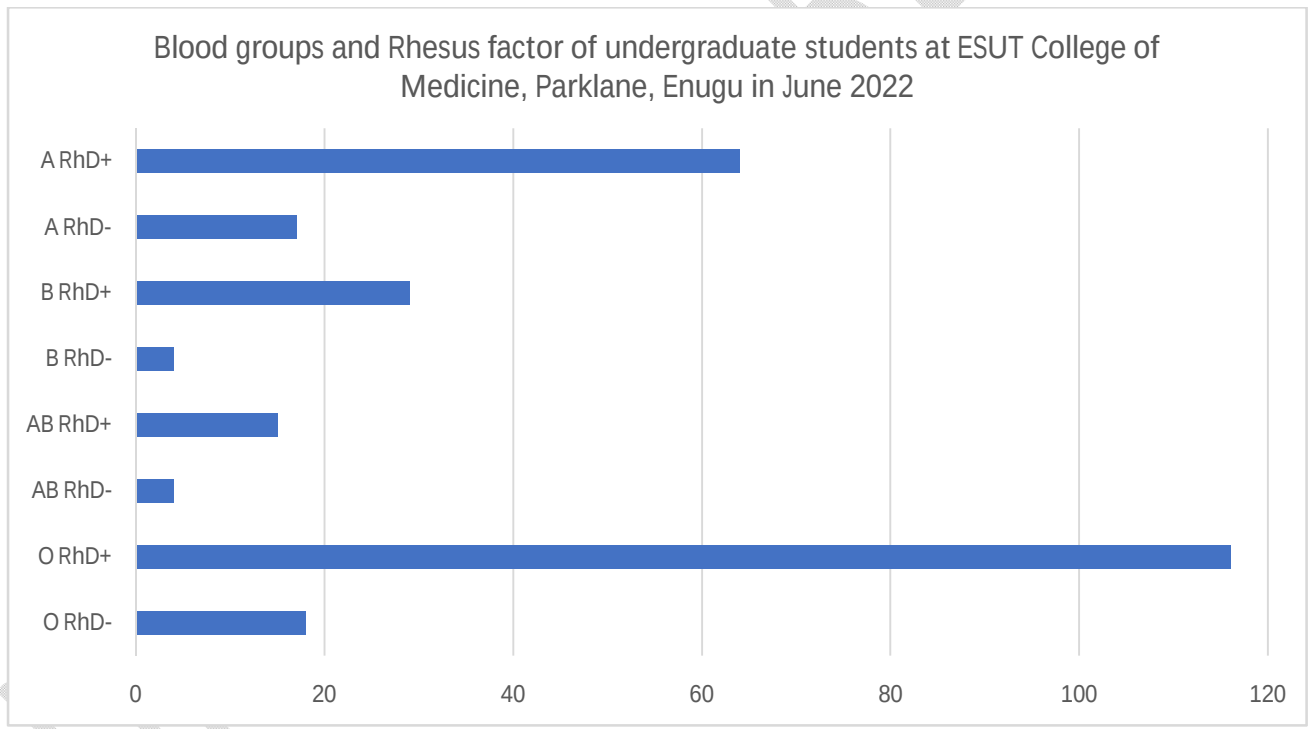

Figure 2: Attitude to blood donation among ESUT undergraduate students, June 2022

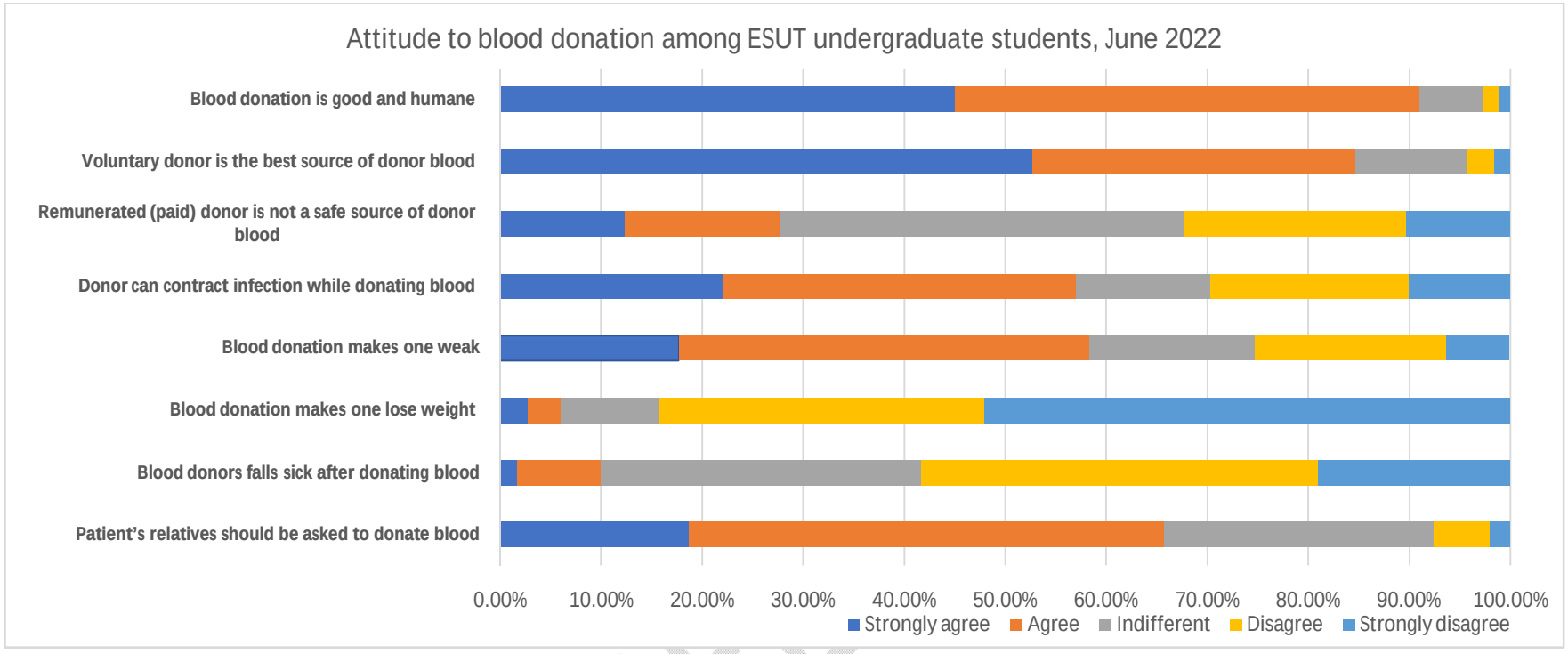
Attitude to blood donation among ESUT undergraduate students, June 2022
Blood donation is good and humane
Voluntary donor is the best source of donor blood
Remunerated (paid) donor is not a safe source of donor blood
Donor can contract infection while donating blood
Blood donation makes one weak
Blood donation makes one lose weight
Blood donors falls sick after donating blood
Patient's relatives should be asked to donate blood
0.00%
10.00%
20.00%
30.00%
40.00%
50.00%
60.00%
70.00%
80.00%
90.00%
100.00%
Strongly agree
Agree
Indifferent
Disagree
Strongly disagree

Table 1: Socio-demographic characteristics of study participants (Undergraduate students in ESUT) in June 2022

Socio-demographic variables	Frequency (n = 300)	Percent
Sex		
° Male	121	40.3%
° Female	179	59.7%
Age (Mean Std Dev)	22.48 years	2.51 years
Age		
° < 20 years	36	12.0%
° 20 – 24 years	210	70.0%
° 25 – 29 years	50	16.7%
° ≥ 30 years	4	1.3%
Department of study		
° Medicine	102	34.0%
° Medical Laboratory Science	92	30.7%
° Anatomy	65	21.7%
° Nursing	41	13.6%
Year of study		
° Second year	81	27.0%
° Third year	88	29.3%
° Fourth year	71	23.7%
° Fifth year	60	20.0%
Marital studies		
° Single	286	95.4%
° Married	10	3.3%
° Divorced/Widowed	4	1.3%
Religion		
° Christianity	295	98.3%
° Islam	3	1.0%
° African Traditional Religion	2	0.7%
Denomination (for Christians only, n = 295)		
° Catholic	162	54.9%
° Pentecostal	111	37.6%
° Jehovah's Witnesses	10	3.4%
° Others	12	4.1%

Table 2: Knowledge of blood donation among undergraduate students in ESUT, June 2022

Knowledge variables	Frequency (n = 300)	Percent
Initial source of information about blood donation		
° School	113	37.7%
° Media (Social media, Mass media)	58	19.3%
° Hospital	57	19.0%
° Family and friends	55	18.3%
° Others	17	5.7%
Know their own blood group		
° Yes	267	89.0%
° No	33	11.0%
A person can be infected by receiving blood donation		
° Yes	296	98.3%
° No	5	1.7%
Diseases transmissible by blood transfusion		
° HIV	176	58.7%
° Hepatitis B	175	58.3%
° Hepatitis C	112	37.3%
° Cytomegalovirus	112	37.3%
° Malaria	98	32.7%
° Syphilis	76	25.3%
° Typhoid	20	6.7%
People who should donate blood		
° Healthy people	233	77.7%
° Men	33	11.0%
° Women	11	3.7%
° Vulnerable group	12	4.0%
° Young people, < 18 years	6	2.0%
° Old people	1	0.3%
° No response	4	1.3%
Volume of blood that should be collected in each donation		
° < 500 ml	103	34.3%
° 500 – 1,000 ml	58	19.3%
° Don't know	139	46.4%
Duration of blood donation session		
° < 20 minutes	27	9.0%
° 20 – 60 minutes	81	27.0%
° Don't know	192	64.0%
How often an individual can donate blood?		
° Monthly	24	8.0%
° 2 – 3 monthly	61	20.3%
° 3 – 6 monthly	47	15.7%
° Annually	8	2.7%
° Don't know	160	53.3%
Benefits of blood donation		
° Saves lives	285	95.0%
° Gives opportunity for health status check	74	24.7%
° Source of income	32	10.7%
° Reduces the risk of cancer	6	2.0%
° Burns calories	1	0.3%

Table 3: Practice of Blood donation among ESUT undergraduate students, June 2022

Practice of blood donation	Frequency (n = 300)	Percent
Ever donated blood		
° Yes	86	28.7%
° No	214	71.3%
Reason for donating blood (n = 86)		
° Voluntary	82	95.3%
° Renumerated (paid)	4	4.7%
Reason for not donating blood (n = 214)		
° Never been approached to donate	111	51.7%
° Unfit to donate	18	8.5%
° My religion forbids it	4	1.9%
° Donated blood may be sold	1	0.5%
° No response	80	37.4%
Frequency of previous blood donation (n = 86)		
° Less than once a year	52	60.5%
° 1 – 3 times a year	28	32.6%
° More than 3 times a year	2	2.3%
° No response	4	4.6%
Frequency of donating blood in the last 2 years		
° None	214	71.3%
° Once	57	19.0%
° 2 – 4 times	28	9.4%
° More than 5 times	1	0.3%
Experience after blood donation (n = 86)		
° Unsatisfying	5	5.8%
° Somewhat satisfying	23	26.7%
° Neither satisfying nor unsatisfying	32	37.2%
° Satisfying	17	19.8%
° Very satisfying	8	9.3%
° No response	1	1.2%
Willingness to donate again in future (n = 86)		
° Yes	82	95.3%
° No	4	4.7%
Overall willingness to donate		
° Yes	191	63.7%
° No	56	18.7%
° No response	53	17.6%
Reasons for unwillingness to donate (n = 56)		
° Fear of needles	39	69.6%
° Fear of knowing my status	5	8.9%
° Others	12	21.5%
Encourage relatives and friends to donate		
° Yes	248	82.7%
° No	19	6.3%
° No response	33	11.0%

Table 4: Factors associated with donation of blood among ESUT undergraduate students, June 2022

Factors/variable	Ever donated blood		Adjusted odds ratio (95% CI)	p-value for AOR
	Yes (%) n = 86	No (%) n = 214		
Sex				
° Female	48 (55.8%)	131 (61.2%)	1.00	
° Male	38 (44.2%)	83 (38.8%)	0.84 (0.44 – 1.61)	0.603
Age group				
° < 25 years	65 (75.6%)	181 (84.6%)	1.00	
° ≥ 25 years	21 (24.4%)	33 (15.4%)	1.61 (0.71 – 3.63)	0.252
Marital studies				
° Single	80 (93.0%)	206 (96.3%)	1.00	
° Married or divorced	6 (7.0%)	8 (3.7%)	1.80 (0.33 – 9.69)	0.496
Religion				
° Christian	84 (97.7%)	211 (98.6%)	1.00	
° Non-Christian	2 (2.3%)	3 (1.4%)	1.01 (0.08 – 12.26)	0.993
Department or programme of study				
° Medicine	31 (36.0%)	71 (33.2%)	1.00	
° Nursing	9 (10.5%)	32 (15.0%)	0.53 (0.17 – 1.69)	0.283
° Anatomy	27 (31.4%)	38 (17.7%)	1.39 (0.61 – 3.21)	0.593
° Medical laboratory science	19 (22.1%)	73 (34.1%)	0.58 (0.27 – 1.25)	0.166
Year of study				
° Second or Third year	52 (60.5%)	117 (54.7%)	1.00	
° Fourth or Fifth year	34 (39.5%)	97 (45.3%)	0.59 (0.29 – 1.17)	0.130
Source of information				
° Hospital	27 (31.4%)	30 (14.0%)	1.00	
° Family and friends	15 (17.4%)	40 (18.7%)	0.50 (0.19 – 1.30)	0.154
° School	23 (26.7%)	90 (42.1%)	0.35 (0.15 – 0.82)	0.016
° Media (Social media, Mass media)	12 (14.0%)	46 (21.5%)	0.24 (0.09 – 0.66)	0.005
° Others	9 (10.5%)	8 (3.7%)	2.70 (0.59 – 12.43)	0.203
Know own blood group				
° No	2 (2.3%)	31 (14.9%)	1.00	
° Yes	84 (97.7%)	183 (85.5%)	9.74 (1.99 – 47.75)	0.005
Knowledge about the blood donation				
° Poor	41 (47.7%)	104 (48.6%)	1.00	
° Good	45 (52.3%)	110 (51.4%)	1.58 (0.79 – 3.16)	0.197
Attitude towards blood donation				
° Negative	10 (11.6%)	48 (22.4%)	1.00	
° Positive	76 (88.4%)	166 (77.6%)	2.20 (1.06 – 34.58)	0.036
Will you donate blood in the future				
° No	4 (4.6%)	105 (49.1%)	1.00	
° Yes	82 (95.4%)	109 (50.9%)	31.80 (7.44 – 135)	0.000
Do you encourage others to donate blood?				
° No	4 (4.6%)	48 (22.4%)	1.00	
° Yes	82 (95.5%)	166 (77.6%)	0.61 (0.12 – 3.16)	0.552