ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE

KNOWLEDE, ATTITUDE, PRACTICE AND ASSOCIATED FACTORS TOWARDS VOLUNTARY BLOOD DONATION AMONG NON HEALTH UNDERGRADUATE STUDENTS OF ADDIS ABABA UNIVERSITY, ADDIS ABABA, ETHIOPIA.

BY: TESFAY TEKLU (BSC)

A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES, ADDISABABA UNIVERSITY COLLEGE OF HEALTH SCIENCE, DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF MASTER SCIENCE IN EMERGENCY MEDICINE AND CRITICAL CARE NURSING.

JUNE 2020.

ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF EMERGENCY MEDICINE AND CRITICAL CARE

KNOWLEDE, ATTITUDE, PRACTICE AND ASSOCIATED FACTORS TOWARDS VOLUNTARY BLOOD DONATION AMONG NON HEALTH UNDERGRADUATE STUDENTS OF ADDIS ABABA UNIVERSITY, ADDIS ABABA, ETHIOPIA.

BY: TESFAY TEKLU (BSC)

ADVISORS: AKLILU AZAZH (MD, PROFESSOR)

MEBRAT MICHAEL (BSC, MSC)

JUNE 2020.

ADDIS ABABA, ETHIOPIA

Declaration

I the under signed declared that this thesis is my original work ,has not been presented for degree in this or any other university and that all sources of material used for the thesis have been fully acknowledged.

Name of the student: Tesfay Teklu

Date._____ Signature _____

Approval of primary advisors.

This thesis has been submitted for examination with our approval as university advisors.

Name of the primary advisors:

1. Aklilu Azazh (MD, Professor)

Date_____ Signature_____

2. Mebrat Michael (BSc, MSc)

Date_____ Signature_____

Name of examiner

1. Lemlem Beza (MSc, PhD candidate, Assistant professor)

Date_____ Signature_____

Table of Contents

ACKNOWLEDGEMENT

I would like to thank to Mekelle University for giving me sponsorship. I would also like to extend my deepest thanks Addis Ababa University College of health science for giving me the chance to prepare this thesis. In addition, my special gratitude goes to Professor Aklilu Azazh and Mrs. Mebrat Michael for their valuable advice, comments, and suggestions throughout the preparation of this thesis.

Finally, I would like to thank my families and close friends for their encouragement, understanding, sacrifices, and acceptance of my absence during the period of preparation of this thesis.

LIST OF ABRREVATIONS AND ACRYNOMS

AAU – Addis Ababa University

AOR – Adjusted Odds Ratio

ASTU – Adama Science and Technology University

CNS – College of natural science

CSS – College of social science

EiABC- Ethiopian Institute of Architecture, Buildings Construction and development

ERCS –Ethiopian Red Cross Society

FMoH –Federal Ministry of Health

HBV-Hepatitis B virus

HCV- Hepatitis C virus

HIV-Human Immune deficiency Virus

NBBS-National Blood Bank Service

SPSS-Statistical Package for Social Science

VNRBD –Voluntary Non Remunerated Blood Donor

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Background-Blood and blood products are unique and precious national resources because they are obtained only from individuals who donate blood. It contributes to saving millions of lives each year in both routine and emergency situations. At a minimum, the World Health Organization estimates that a country needs 1% to 3% of its population to donate blood to meet its need. Yet, many African countries including Ethiopia are far below the minimum blood collection rate.

Objective- To assess knowledge, attitude, practice, and associated factors towards voluntary blood donation among non-health students of Addis Ababa University, Addis Ababa, Ethiopia,2019.

Methods-A cross-sectional study was conducted among 363 students in three selected non - health college students of Addis Ababa University who were selected randomly. A stratified random sampling procedure was employed according to the departments and year of the study. A pretested self-administered questionnaire was used to collect data. Both bivariate and multivariable logistic regressions were used to identify associated factors.

Result- The proportion of students having good knowledge of blood donation, favorable attitude and practice were 68%, 94.8% and 23.1 % respectively. Knowledge was significantly associated with Religion [(AOR=7.516, 95%CI: (1.313-43.018)] , information Heard/seen about blood donation [AOR=6.184, 95%CI: (1.852-25.073)] and departmental grouping[AOR=3.326, 95%CI: (1.457,7.589)].Attitude was significantly associated with Religion [AOR=6.72, 95%CI: (1.057-42.729)] and poor knowledge [AOR=.330, 95%CI: (.118-.919)].The practiced of voluntary blood donation was significantly associated with Taking part in blood donation campaign[AOR=19.485, 95%CI: (9.082-41.802)] and poor knowledge [AOR=0.323, 95%CI: (0.144-0.726)].

Conclusion: Significant numbers of students in this study have poor knowledge and practice of blood donation while the level of attitude is good. Having taken part in blood donation campaigns and good knowledge about blood donation increased the odds of the practice of VBD

Keywords: Knowledge, Attitude and Practice

1. INTRODUCTION

1.1. Background

Blood transfusion is an important part of health care. It saves millions of lives annually in each routine and emergency condition; permits progressively advanced medical and surgical interventions, and dramatically improve the life expectancy and quality of life of patients with a variety of acute and chronic conditions(1).

Almost 800 women die from causes related to complications of pregnancy and childbirth every day. Severe hemorrhage throughout pregnancy, delivery, or after childbirth is the single biggest cause of maternal death and can kill a healthy woman within 2 hours if she is unattended (2) .

Blood donors can be classified into 3 types namely voluntary unpaid, family/replacement and paid. An adequate and reliable supply of safe blood can be assured by a stable base of regular, voluntary, unpaid blood donors(3). The aim of a transfusion is to deliver the blood component(s) that will improve the physiological status of the patient(4) .

Blood and blood products are a novel and precious national resource as a result of they're available solely from people who present blood or its elements. Most countries desperately need a considerable increase in the number of individuals who are willing and eligible to give blood in order to safeguard a stable supply of safe blood and blood products that is abundant to meet national needs(1).

The proportion of voluntary non-remunerated donations in the African Region was 67%(5).A cross-sectional survey on blood safety indicators was conducted in the WHO African region. The study showed that the donation rate was ranging from 3.9/1,000 -5.1/1,000 inhabitants. The proportion of VNRBDs was lowest in Central Africa (34.4%) and West Africa (48.4%)(6).

Data concerning the gender profile of blood donors show that globally twenty eighth of blood donations are given by girls, although this ranges widely. In sixteen of the 119 reporting countries, less than 10% of donations are given by female donors. The age profile of blood donors shows that, proportionally, more young people donate blood in low- and middle-income countries than in high-income countries. Demographic information of blood donors is important for formulating and monitoring recruitment strategies(7) .

A survey conducted among 17 developing countries on knowledge, attitude and practice towards blood donation showed that the overall general knowledge of the uses, typing and testing of donated blood was high across all surveys .The survey showed that a positive attitude, ranging from 97.5% in Iran to 69.7% in Tanzania. The practice of blood donation was poor ranging from 17.5% in South Africa to 14% in Chilean university students (8).

Blood transfusion services were provided by the Ethiopian Red Cross society since 1969 through a Memorandum of Understanding (MoU**)** with the Federal Ministry of Health (FMoH). FMoH made a policy decision to revert the responsibility for the National Blood Transfusion Services (NBTS) from the Ethiopia Red Cross Society(ERCS) to a Government-led and managed service under the FMoH and the Regional health bureaus a process that started in 2010 and was completed in 2013 (9).

A study among health science students of Samara University showed that out of total participants 54% of them had adequate Knowledge regarding voluntary blood donation, about 65.8% had favorable attitude and less than one quarter (24.5%) had ever donated blood(10).

1.2 Statement of the problem

The number of blood donations per 1000 people is commonly used as a proxy indicator for the availability and adequacy of the blood supply in a given country. At a minimum, WHO estimates that a country needs 1% to 3% of its population to donate blood in order to meet its need. However, the average donation rate is fifteen times lower in developing countries than in developed countries(1).From the total blood collected worldwide about 42% of these are collected in high-income countries; home to 16 % of the world's population(7). However the demand for blood continues to rise to support increasingly sophisticated medical and surgical procedures, trauma care and management of blood disorders. An increase in ageing populations needing more medical care has also led to increased requirements for blood(1) .

The African Region faces a high demand for blood transfusion due to bleeding related to pregnancy and childbirth, high prevalence of malaria with the attendant complication of severe malarial anemia, road traffic accidents and other types of injury as well as other indications for blood transfusion. Ensuring universal access of all the population to a safe blood supply faces a number of challenges in the region. These include a high burden of disease transmissible through blood transfusion, Reliance on family replacement donations, limited coverage and quality of testing, inappropriate blood transfusion and poorly developed quality systems pose additional challenges(3).

Thirty eight countries in the African Region report collecting fewer than 10 donations per 1000 population. There is a constant need for regular blood because it can only be stored for a limited time before use. Regular blood donations by a sufficient number of healthy people are needed to ensure that safe blood will be available whenever and wherever it is needed. But More than 50% of the blood supply is still dependent on family members and paid blood donors(3).

Despite the total number of units of blood collected is increased from 24,000 units per annum in 2004 to 95,466 in 2013, there is still inadequacy and in-equitability in access to blood in Ethiopia. Proportion of voluntary blood donation increased from 10% in 2012 to 92.1% in 2014 achieving the WHO regional target of 80% voluntary blood donation(9).

Although there are a number of published literatures across the developing world on the area of blood donation, it is barley available to find study conducted on outside health professionals or medical Students. Few studies were carried out to show level of knowledge attitude and practice towards voluntary blood donation among university students in Ethiopia .But those few previous studies are not adequate to show the full picture of the phenomenon, and still there is a gap in the level of knowledge, attitude and practice of the students. As to my knowledge there is no study conducted particularly on non-health students in Ethiopia. Thus, this study is primarily intended to provide information on the level of knowledge, attitude, and practice of blood donation and associated factors among non-health students of AAU.

1.3 Significance of the study

The progress in meeting the national demand of blood is not satisfactory despite the fact that various efforts are made from programmatic to institutional and community level. The study is helpful in addressing the gap of knowledge, attitude, and practice and associated factors of non-health students of Addis Ababa University. The study will have a significant contribution in creating regular voluntary blood donors and show a way for the Ethiopian NBBS and different concerned bodies working on maternal health, trauma and emergency services. Identifying the gaps of the students and acting upon the problem will be very helpful in educating the community at large about voluntary blood donation. Because the students are the image of the community, they have the capability in creating awareness among the community when they come back home to their families. Furthermore, it will help as base line information for further studies.

2. LITERATURE REVIEW

2.1 Knowledge

A cross-sectional study of comparison between medical and non-medical students of two colleges conducted in Basrah, Iraq ,showed 66.7% of the participants had a good knowledge (73.0% among medical students vs. 43.0% of the students of College of administration and Economic)(11). A study done among University students in Shah Alam, Malaysia showed 97.1 % had Good knowledge(12). A study conducted among students of Chitwan, Nepal showed that all respondents (100%) agreed to if reminded or called to donate in the future. About 61.1% of the participants had good knowledge (13).

A cross- sectional study conducted in Rajasthan on medical college students showed that about (80%) of the subjects knew minimum weight to donate blood, (82%) knew the interval between donations and (33.33%) knew the volume of blood at one setting (14) .A cross sectional study conducted among University Students in Tanzania showed that about 126(37%)knew the amount of blood that could be donated at one setting of blood donation (15) .A study conducted among health sciences students of Addis Ababa University showed that 321(83.7%) of respondents have good knowledge. Among the respondents, 85.7% ,90.4%,40.9% and 91.4% knew the age ,weight limit minimum time interval between two blood donations and the maximum amount of blood to be donated respectively (16) .

A comparative study conducted in ASTU and Arsi University Non-Health Science and Health Science students showed that majority of Health Science students 143(79.4%) of them had good knowledge regarding blood donation while only 25(13.9%) of Non-Health Science students had good knowledge (17) .

2.2 Attitude

A cross-sectional study conducted among university students of India , Iraq and Malaysia showed that 57.8% ,68.7% and 88.8% of the participants had favorable attitude towards blood donation respectively (18,11,12). A study done among university students in Kilimanjaro, Tanzania showed that 94.7% of the study participants had favorable attitude.(15).

A comparative study conducted in ASTU and Arsi University Non-Health Science and Health Science students revealed that about 84(46.7%) and 64(35.6%) of Health and Non-Health Science students had favorable attitudes towards blood donation respectively(17).

A cross sectional study conducted on 384(206 male and 178 female) students of Addis Ababa University, college of health sciences and medicine showed that around one third, 123(32%) of participants had unfavorable attitude towards blood donation .Among the respondents all of them showed willing to donate in the future. However 23.4%, 34.6%, and 50% of respondents believe that blood donation makes weak, causes anemia and reduce immunity respectively(16).

2.3 Practice

A descriptive cross-sectional study of comparison between medical and non-medical students of two colleges in Basrah University was conducted in Basrah, Iraq. Of the total participants only 51 (13%) of total respondents had a history of blood donation, of those 64.7% donated only once. The most mentioned reasons for not donating were; not being asked to donate (24.6%), inconsideration of donation (11.1%), and fear of drawing blood (8.8%)(11). Another study conducted among University students in Shah Alam, Malaysia showed that less than one third of the participants (29.7%) had ever donated blood(12).

Another study conducted in Pravara University campus of central India showed that nearly half (47.5%)of the participant had ever donated(19,12,20,21) .A descriptive cross sectional study among 167 students of Chitwan, Nepal showed that only less than one quarter (23.4%) had donated blood before . the reason for donating were feeling social responsibility (56.4%) and peer (38.5%). Out of 39 donors, Just over half (51.3%) had donated blood once while 23.1% had donated twice before. Regarding reasons not to donate blood, 35.2% said due to fear of weakness and venous puncture whereas 32% said due to medically unfit to donate blood(13).A cross- sectional study conducted in Udaipur city of Rajasthan on medical college students showed that Out of 150 study subjects only (14%) had ever donated blood. The Reasons for not donating were Afraid of procedure 61 (47.29%), no one asked them 40 (31.00%) and Fear of contracting any disease 06 (4.65%)(14).

A descriptive cross sectional study carried out at Faculty of Health Sciences University of Namibia revealed that Only 28% had donated blood on a regular basis while 224 (72%) had never donated blood. reasons for not donating blood were ; due to fear of needle(21.5%); lack of information about blood donation(14.8%); said they were underweight(13.2%), were not interested (10%)and said they had medical reasons(8.7%) (20) .

A cross sectional study conducted in Students of Nigerian University showed that about 35.4%of the participants had ever donated. The reasons for donating were 147(93%) to save lives, 6(3.8%) as a reward for benefiting from donated blood, 3(1.9%) to get free medical check and 2(1.3%) to get money .the reason for not donating were Lack of information on blood donation and its importance 47(29.7%), Don't have enough blood to donate 36(22.8%) and Fear of post-donation outcomes 15(9.5 %)(21).

A cross sectional study conducted among health sciences students of Addis Ababa University showed that only less than one quarter, 90 (23.4%) have ever donated blood. Out of the total participants (90) who ever donated blood, less than half, 38(42.2%) of them were a regular donors. Concerning what motivates them for blood donation, 74% were motivated by moral duty and 23.3% were motivated for maintaining once health. Among those who didn't ever donated blood, the main reason for not donating were : lack of information , being not asked and fear which were 68.4%, 66.7% and 56% respectively (16).

2.4 Factors

2.4.1 Factors associated with level of knowledge

A cross sectional study conducted in medical college in Karachi, Pakistan showed that male gender was associated with knowledge on blood donation when compared to female gender(22).

A comparative study conducted in ASTU and Arsi University Non-Health Science and Health Science students respectively showed that gender of the students was found as the significant predictor. Accordingly, female Health Science students were 3.2 times more knowledgeable than male .Health Science students ,Religion and residence of the students were significant predictors(17).

A study conducted among health science students of Addis Ababa University showed that Age ≥25, increased year of study and department were found to be significant predictors of level of knowledge while sex didn't showed any significance of knowledge(16).

2.4.2 Factors associated with level of attitude

A cross-sectional study among students in Semnan University of Medical Sciences ,Iran showed that no significant association between gender and attitude towards blood donation(23) .

A comparative study conducted in ASTU and Arsi University Non-Health Science and Health Science students showed Gender and year of study of the students were the significant factors(17) while the study conducted among health science students of Addis Ababa University showed that Year of study, age and department didn't have significant association during multivariate analysis but Being male increased odds of favorable attitude [AOR (95% CI) =2.2 (1.4, 3.6)](16). A study done in ambo showed that the respondents who had good knowledge were 2.16 times [AOR, (95% CI), 2.16(1.4, 3.35) more likely had positive attitude as compared to less knowledge towards voluntary blood donation (24).

2.4.3 Factors Associated with Practice of Blood Donation

A study conducted at three different colleges of Kathmandu, Nepal showed that boys were much more donating than girls, being 31.5% and 8.7% respectively (very significant, p value 0.01). Donors also had a higher score on knowledge assessment than non-donors (highly significant, p value 0.01). Those students who participated in organizing blood donation camps were more likely to donate(25).

A cross sectional study among University Students in Kilimanjaro, Tanzania showed that knowledge was not significantly associated with donation practices (15,10).A study conducted among health science students of Addis Ababa University showed that a statistically significant association with only sex and age >25. Being male and being age >25 increased odds of practice(16).A study done among health science students of Samara University showed that religion, department and altruism were associated with level of blood donation practice while factors like sex, age, residence, mass media exposure, and increased level of knowledge, were not found to be associated with blood donation practice(10).

3. OBJECTIVE

3.1 General objective

To assess knowledge, attitude, practice and associated factors towards voluntary blood donation among non-health students of Addis Ababa University ,Addis Ababa ,Ethiopia ,2020.

3.2. Specific Objectives

1. To assess knowledge on blood donation
2. To assess attitude on blood donation
3. To assess the practice of blood donation
4. To assess factors associated with knowledge, attitude and practice of blood donation.

4. METHODS AND MATERIALS

4.1 Study area and period

The study was done in three randomly selected regular undergraduate non-health science college students of Addis Ababa University namely College of Social Sciences, College of Natural Sciences, and The Ethiopian Institute of Architecture, Building Construction and City Development (EiABC). Addis Ababa University (AAU) was established in 1950 as the University College of Addis Ababa (UCAA). It is the oldest and the largest higher learning and research institution in Ethiopia. Since its inception, the University has been the leading center in teaching-learning, research, and community services.

The College of Social Sciences (CSS) was established in 1978 following the reorganization of Addis Ababa University (AAU). Currently, it comprises nine departments and about 511 regular undergraduate students. The College of Natural Sciences was established on March 20, 1950. The College comprises eight departments, two schools, two institutes, and three multidisciplinary programs offering undergraduate and postgraduate degrees. Currently, it has about 941 regular undergraduate students. The Ethiopian Institute of Architecture, Building Construction and City Development (EiABC) is a State Institute, known as the Ethio-Swedish Institute, or in short: the Building College. This institution was founded in 1954 through a bilateral agreement between the Ethiopian and Swedish Governments. Currently, the college has 929 regular undergraduate students. This study was conducted from February 17, 2020, to March 20, 2020.

4.2 Study design

An institution based cross sectional study design was used to conduct this research.

4.3 Source population

All regular undergraduate students of Addis Ababa University who are second year and above were the source population.

4.4. Study population

-All regular undergraduate students who were second year & above of the three randomly selected colleges of AAU.

4.5. Inclusion and exclusion criteria

4.5.1 Inclusion criteria

-All regular undergraduate students who were second year and above were included.

4.5.2. Exclusion criteria

–Students who were seriously ill and Students who were not around for different academic purposes during data collection period were excluded.

4.6. Study variables

4.6.1 Dependent variables

Knowledge of blood donation, Attitude of blood donation and Practice of blood donation

4.6.2. Independent variables

-Age, Sex, Class year, marital status, Religion, Department, Residence and Family educational status

4.7 sample size determination

Sample size was estimated using a single population formula and it was calculated with the following Assumptions: The proportion for this study was taken from previous study using knowledge level of 83.7%, attitude 68% and practice 23.4%.To increase the power of the study the maximum sample size (p=68%) was considered for this study**.** Therefore, the sample size was calculated using a single proportion estimate.

$$n = \frac{(z\alpha/2)^2 P (1-P)}{d^2}$$

Where: - α= confidence interval=95%

p=best estimate of population proportion (68%)

w=maximum acceptable difference=5%

n=minimum required sample size

Zα/2 =value under standard normal table for the given value of confidence level=1.96

$n = \frac{(1.96)2.0.68\ (1-0.68)}{(0.05)2}$, =334.37288≈ 335, with 10% non -response rate i.e.33.5 ≈34

Therefore the total sample size was 335+34=**369**

4.8 Sampling methods & procedures

From the total colleges three colleges were randomly selected. A total of 2381 non-health regular undergraduate students were attending their study in three colleges under 20 departments .A stratified random sampling procedure was employed according to the departments and year of the study. After identifying the number of students in each department with their respective year of study, the sample for each stratum was distributed using the proportional allocation to size formula. Then, a list of students' identification number taken from office of registrar was entered into computer. Finally, participants were selected by simple random sampling technique from each sub-stratified population proportionally (Figure 4 & Annex 2: Sampling procedure Figure 5).

4.9 Operational Definitions

Level of knowledge: This is the understanding level of students on the benefits, risks, eligibility criteria of blood donation. Knowledge was assessed by 9 questions. Respondents with all correct response got a maximum of 9 points, higher points indicate good knowledge. Based on total score, level of knowledge on blood donation was classified into poor (less than 5 points) and good (≥ 5).

Attitude: Attitude is the intention of participants towards blood donation practice. The attitude for blood donation was assessed through 6 questions. Those who score less than 3 were categorized as having an unfavorable attitude toward blood donation and those above or equal to 3 were labeled as having a favorable attitude towards blood donation.

Practice: This denotes whether a particular participant has experienced blood donation or not. (16)

4.10 Data collection techniques and tools

Health professionals specifically BSc nurses were hired for data collection and they were given training on the process of data collection tools and procedures. The principal investigator was providing orientation before the data collection begins to the data collectors on the objectives of the study and the overall stepwise retrieving of data collection. Moreover, the principal investigator explained and clarifies vague points and other problems encountered prior to the data collection. Data were collected by using a self-administered questionnaire which was translated into Amharic and collected for about one month by trained data collectors from respected departments according to their proportion in the class. An English version questionnaire was used for those who couldn't understand the Amharic version. The questionnaire was developed based on the objectives and different literature reviewed (16,24–27) and was included socio-demographic factors, knowledge, attitude, and practice.

4.11 Data quality control measures

Questionnaires whose internal consistencies have been checked by previous researchers were used after carefully adapting them into the current context and without changing the original meaning. Then, the adopted questionnaires were pre-tested with 5% of the sample size at the college of Business and Economics, School of Commerce. Questionnaires were checked thoroughly for its completeness, objective, and variable based before was distributed to respondents, data were monitored during the data collection period by the principal investigator and supervisor. Finally, data were also checked for consistency and completeness before entry to computer software for analysis.

4.12 Data processing and analysis

The collected data were checked for its completeness, consistency, and accuracy before analysis. The data were presented using descriptive (percentage, mean, range, and frequency) and analytic statistics. The data were entered into Epi data version 3.1 and exported to SPSS. Data were analyzed by using SPSS version 25.00 software. Bivariate and multivariate logistic regression models were used to identify the associated factors. Variables having a p-value of less than 0.05 are considered significant variables. AOR was used to see the strength of the association between dependent and independent variables.

4.13 Ethical considerations

Ethical clearance was obtained from the department of emergency medicine. In addition to that, verbal and written consent was obtained from all study subjects who were assured that participation was on a voluntary basis. On top of that, to keep the anonymity of study participants, code numbers rather than personal identifiers were used and all questionnaires were sealed with post following data collection at each department. Finally, all questionnaires were kept locked after data entry completion and were destroyed at the end of the study.

4.14 Dissemination of results

Final copy of this study finding will be submitted to Addis Ababa University Faculty of Medicine Department of Emergency Medicine and critical care nursing, Federal Ministry of Health, National Blood Bank Service, and the selected colleges. The finding of the research will be presented on conferences and manuscript will be developed and submitted for publication on peer reviewed scientific Journals

5. RESULT

5.1. Sociodemographic characteristics

Out of 369, about 363 students participated with a response rate of 98.3%. The respondents' mean age was 21.49 years old and it ranges from 18 to 32years. The majority of the participants were males 226(62.3%). Regarding to religion 249(68.6%), 134(16%) and 46(12.7%) of the respondents were Orthodox, protestant and Muslim respectively. With regards to study participants' family educational backgrounds of their fathers and mothers about 278 (76.6%) and 262 (72.2%) were illiterate in their educational status respectively.

Table 1: Sociodemographic characteristics on blood donation among non-health science students of AAU, 2020

Characteristics	Category	Freq (%)
Age	18-24	351(96.7%)
	≥25	12(3.3%)
Sex	Male	226(62.3%)
	Female	137(37.7%)
Religion	Orthodox	249(68.6%)
	Muslim	46(12.7%)
	Protestant	58(16.0%)
	Others	10(2.8%)
Marital status	Single	349(96.1%)
	Married	8(2.2%)
	Separated	5(1.4%)
	Divorced	1(0.3%)
Residence	Urban	265(73%)
	Rural	98(27%)
Year of study	Second	115(31.7%)

	Third	133(36.6%)
	Fourth	50(13.8%)
	Fifth	65(17.9%)
Father ever attend school	Yes	278(76.6%)
	No	85(23.4%)
Father's level of education	Primary	62(17.1%)
	Secondary	51(14%)
	Technical	14(3.9%)
	Higher(collage/university)	151(41.6%)
Mother ever attend school	Yes	262(72.2%)
	No	101(27.8%)
Mother's level of education	Primary	80(22.0%)
	Secondary	52(14.3%)
	Technical	21(5.8%)
	Higher(collage/university	109(30%)
Department	Biology	27(7.4%)
	Chemistry	13(3.6%)
	Computer Science	30(8.3%)
	Geology	14(3.9%)
	Information Systems	10(2.8%)
	Mathematics	7(1.9%)
	Physics	16(4.4%)
	Sport Science	8(2.2%)
	Statistics	19(5.2%)
	Architecture	50(13.8%)
	Construction technology management	78(21.5%)
	Urban and Regional Planning	15(4.1%)
	Archaeology and Heritage Management	5(1.4%)
	Geography and Environmental	12(3.3%)
	History	3(0.8%)
	Philosophy	3(0.8%)
	Political Science and International Relations	14(3.9%)
	Social Anthropology	14(3.9%)
	Social Work	7(1.9%)
	Sociology	18(5%)

5.2. Level of knowledge

Out of the total participants, 247 (68%) had good knowledge whereas the remaining 116 (32%) had poor knowledge about blood donation. A bout 311 (85.7%) respondents had good knowledge of the common blood group type, and only 139 (38.3%) knew their own blood groups. Majority of the respondents 278 (76.6%) had good knowledge on the risk of transmission of infection by transfusion. The risk of transmission of HIV was confirmed by 269 (96.7%), HBV 121 (43.6%) and HCV 57 (20.5%).Concerning to the knowledge of illegible groups to donate blood, majority of the respondents stated 295 (81.2 %) Diseased,165(46.3%) old>60 years,150(41.5%) vulnerable groups and 135 (37.1%) young<18 years. Majority; 218(60%), 241(66.4%), 239(65.8%) and 137(37.7%) of the study participants did not know the volume of blood to be donated once, duration of a donation process, minimum weight and minimum interval between two donations respectively.

Table 2: knowledge on blood donation among non-health science students of AAU, 2020

Questions	**Response**	**Freq (%)**
Heard/seen Information about blood donation	Yes	348(95.9%)
	No	15(4.1%)
know common blood groups	Yes	311(85.7%)
	No	52(14.3%)
Do you know your blood group	Yes	139(38.3%)
	No	224(61.7%)
Your blood group	A+	29(20.9%)
	A-	6(4.3%)
	B+	17(12.2%)
	B-	8(5.8%)
	AB+	16(11.5%)

	AB-	3(2.2%)
	O+	54(38.8%)
	O-	6(4.3%)
Can a person be infected by receiving blood transfusion	Yes	278(76.6%)
	No	85(23.4%)
How often individual donate_	Weekly	7(1.9%)
	Monthly	11(3%)
	three monthly	226(62.3%)
	six monthly	68(18.7%)
	Annually	8(2.2%)
	do not know	43(11.8%)
Who should not donate blood	Men	1(0.3%)
	Women	3(0.8%)
	Healthy	21(5.8%)
	old>60 yrs	165(46.3%)
	vulnerable groups	150(41.5%)
	young <18yrs	135(37.1%)
	Diseased	295(81.2%)
volume of blood is collected during each donation	<500mls	145(39.9%)
	500-1000mls	35(9.6%)
	do not know	183(50.4%)
duration of a donation process	20 minute	122(33.6%)
	20-60 minute	53(14.6%)

	do not know	188(51.8%)
minimum weight limit	<45 kg	65(17.9%)
	45 kg	124(34.2%)
	>45 kg	72(19.8%)
	do not know	102(28.1%)
Overall knowledge	Good	247(68%)
	Poor	116(32%)

NB:-Multiple responses possible, percent can't add up to 100.

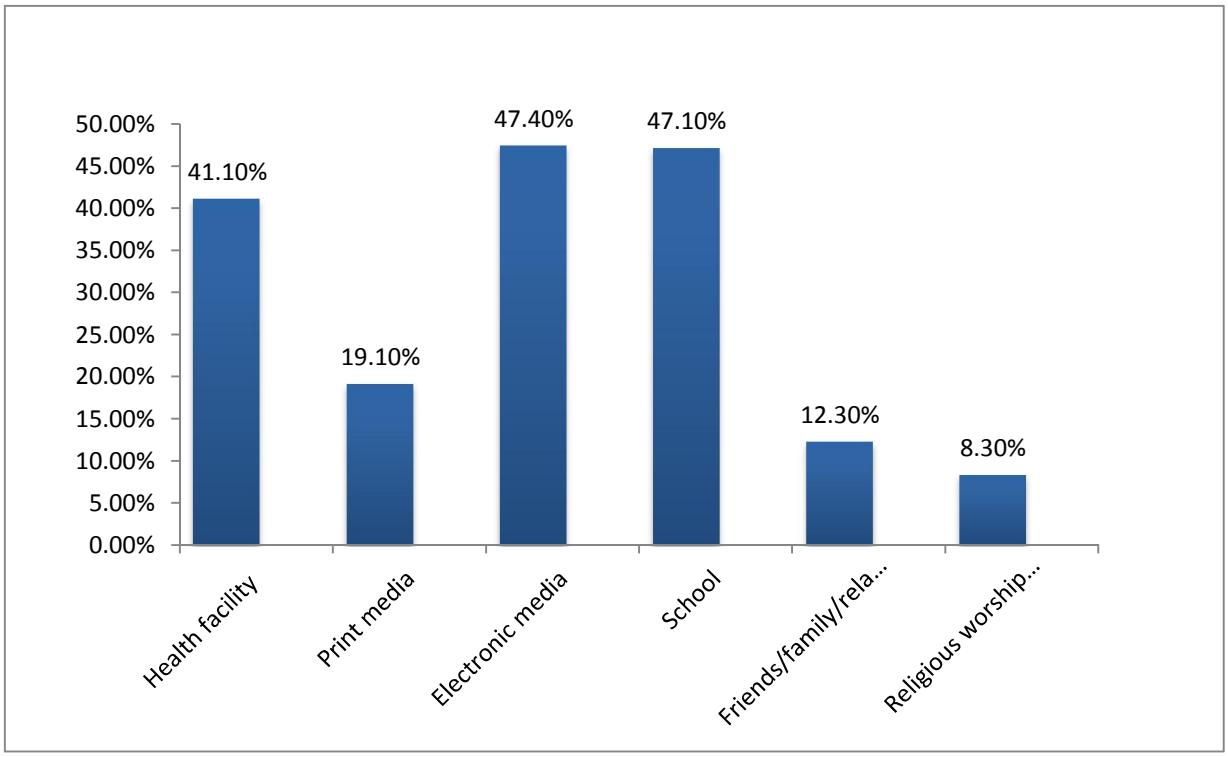


Figure 1: Sources of information about blood donation among non-health students of AAU,2020

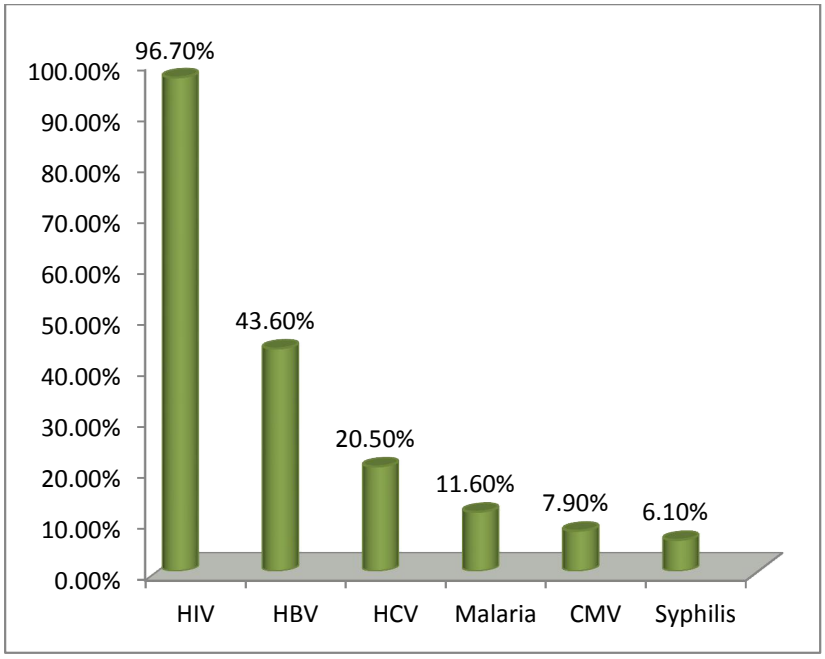


Figure 2: Diseases transmitted by blood transfusion

NB:-Multiple responses possible, percent can't add up to 100.

5.3. Level of Attitude

From the total respondents, 344(94.8%) had a positive attitude towards voluntary blood donation. Majority 337(92.8) of the study participants thought that blood donation is good while about 139(38.3%) of the participants were not willing to donate if called upon or reminded to do so. Regarding the source of blood donation about 327(90.1%) thought that voluntary donors are the best sources. However, about 276(76%) of them agreed that the patient's relative should be asked to donate.

Table 3: Attitude towards blood donation among non-health science students of AAU, 2020

Question	Response	Freq (%)
What do you think about blood donation	Good	337(92.8%)
	Bad	7(1.9%)
	No idea	19(5.2%)
What do you think is the best source of blood donation	Voluntary donor	327(90.1%)
	Replacement donor	10(2.8%)
	Remunerated donor	6(1.7%)
	Self-donor	5(1.4%)
	Do not know	15(4.1%)
Do you think something harmful happen to a blood donor during or after blood donation	Yes	173(47.7%)
	No	109(30%)
	I do not know	81(22.3%)
What can happen to a blood donor during or after donation	contract infection	36(9.9%)
	temporary weakness	298(82.1%)
	fall sick	29(8%)
Do you think that patient's relative should be asked to donate	Yes	276(76%)
	No	46(12.7%)
	I do not know	41(11.3%)
Will you donate if called upon or reminded to do so	Yes	224(61.7%)
	No	139(38.3%)
Overall Attitude	Favorable	344(94.8%)
	Unfavorable	19(5.2%)

5.4. Practice

This study revealed that less than a quarter 84(23.1%) of the participants had ever donated at least once. Among the donors about 37 (44%), 37 (44%), and 21 (25%) were donated once, twice and more than two times in their lifetime respectively. The main reason for blood donation reported was 62(73.8%) moral satisfaction. The reasons for not donating were 83(29.7%) fear of blood donation, 66(23.7%) never thought of it and 46(16.5%) feeling of medically unfit. Majority 312(86%) of the participants had not taken part in any blood donation campaigns.

Table 4: Practice of blood donation among non-health science students of AAU, 2020

Question	Response	Freq (%)
Have you ever donated blood before	Yes	84(23.1%)
	No	279(76.9%)
How many times do you donate	Once	37(44%)
	Twice	26(31%)
	More than 2 times	21(25%)
What was the reason for not donating	I have no information	13(4.7%)
	Fear of blood donation	83(29.7%)
	Medically unfit	46(16.5%)
	Under age	10(3.6%)
	Cultural or religious rejection	9(3.2%)
	Lack of time	10(3.6%)
	Inaccessibility of the service	1(0.4%)
	Never thought of it	66(23.7%)
	Parental or peer opposition	9(3.2%)
	Never had the opportunity	9(3.2%)

	My blood will be sold	12(4.3%)
	Others	11(3.9%)
Taken part in BD campaigns	Yes	51(14%)
	No	312(86%)
Overall practice	Ever donated	84(23.1%)
	Not ever donated	279(76.9%)

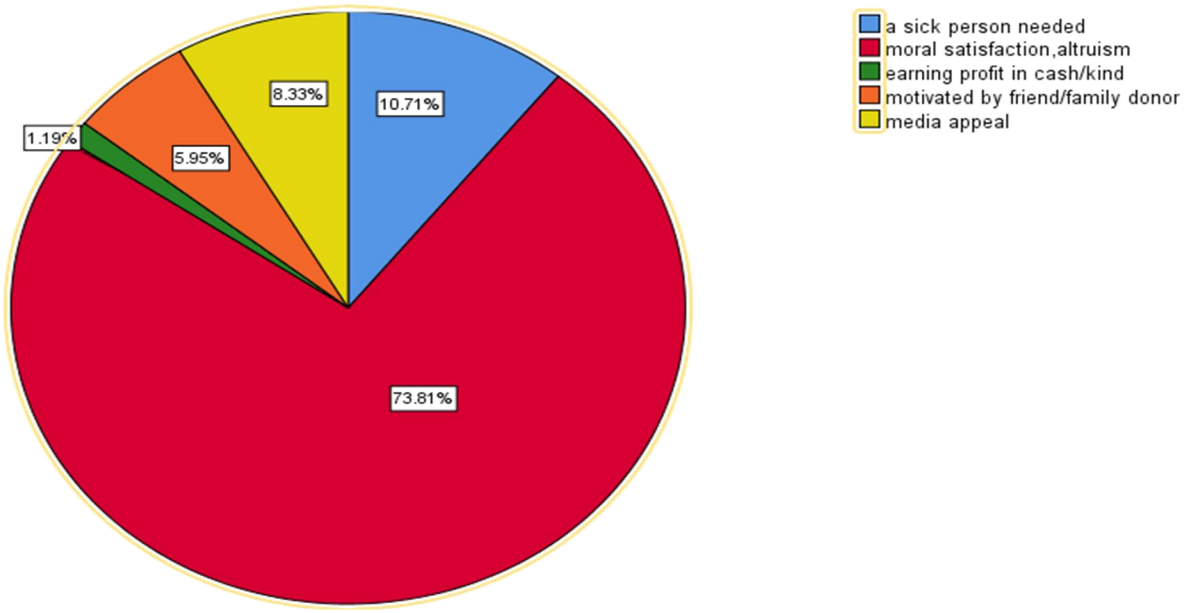


Figure 3: Reasons for blood donation among non-health students of AAU,2020

5.5. Associated factors

5.5.1. Factors associated with knowledge towards voluntary blood donation

Bivariate analysis showed a statistically significant association of level of knowledge towards blood donation with age, religion, year of study, family's educational status (mother and father), and departmental grouping. After controlling for the effects of potentially confounding variables using multivariate logistic regression, only religion, information Heard/seen about blood donation before, and departmental grouping were found to be statistically significant predictors of level of knowledge. Being protestant and having heard/seen information about blood donation before increased the odds of level of knowledge of respondents on blood donation. (See table 5)

5.5.2. Factors associated with attitude towards voluntary blood donation

Bivariate analysis showed a statistically significant association of level of attitude towards blood donation with religion, information heard/seen about blood donation, departmental grouping, and knowledge. Using multivariate logistic regression, religion and knowledge were found to be statistically significant predictors of level of attitude. Having poor knowledge about blood donation decreased odds of the level of attitude while being orthodox in religion increased the odds of the level of attitude of respondents towards voluntary blood donation. (See table 6)

5.5.3. Factors associated with practice of voluntary blood donation

Bivariate analysis showed a statistically significant association of practice of blood donation with residence, family's educational status, heard/seen information about blood donation, departmental grouping, and taking part in blood donation campaign, attitude and knowledge. Using multivariate logistic regression, Taking part in blood donation campaign and knowledge were found to be statistically significant predictors of practice. Having taken part in blood donation campaign increased the odds of practice while respondents with poor knowledge about blood donation decreases the odds of practice towards voluntary blood donation. (See table 7)

Table 5: Factors associated with knowledge among non-health science students of AAU, 2020

Characteristic	Category	Overall knowledge		COR(95%CI)	AOR(95% CI)	P Value
		Good	Poor			
Age	18-24	241(66.4%)	110(30.3%)	2.191 (.691,6.946)	1.105(.305,4.002)	.879
	≥25	6(1.6%)	6(1.6%)	1		
Year of study	Second	77(21.2%)	38(10.46%)	.459 (0.219,0.95)	.974(.355,2.673)	.959
	Third	82(22.58%)	51(14%)	0.`364 (.178,0.746)	.689(.269,1.769)	.439
	Fourth	35(9.64%)	15(4.1%)	.528 (.221,1.262)	.683(.248,1.887)	.463
	Fifth	53(14.6%)	12(3.3%)	1	1	
Religion	Orthodox	163(44.9%)	86(23.7%)	1.895(.534,6.728)	3.517(.892,13.862)	.072
	Muslim	31(8.5%)	15(4.13%)	2.067(.518,8.251)	4.064(.915,18.061)	.065
	Protestant	48(13.2%)	10(2.75%)	4.800(1.167,19.749)	**7.341(1.593,33.826)***	**.011**
	Others	5(1.38%)	5(1.38%)	1	1	
Father	Literate	206(56.7%)	72(19.8%)	3.070 (1.857,5.078)	2.020(.949,4.299)	.068
	Illiterate	41(11.3%)	44(12.12%)	1	1	
Mother	Literate	195(53.7%)	67(18.46%)	2.743(1.699,4.427)	1.421(.693,2.910)	.337
	Illiterate	52(14.3%)	49(13.5%)	1	1	
information Heard/seen about BD	Yes	243(67%)	105(29%)	6.364(1.981,20.445)	**6.719(1.909,23.649)***	.003
	No	4(1%)	11(3%)	1	1	
Departmental grouping	Natural	115(31.7%)	28(7.7%)	3.696 (2.006,6.810)	**3.326(1.457,7.589)***	**.004**
	EiABC	92(25.3%)	52(14.3%)	1.592(906,2.799)	1.538(.830,2.850)	.172
	Social	40(11%)	36(9.9%)	1	1	

* = Significant association at p value < 0.05

Table 6: Factors associated with attitude of blood donation among non-health students of AAU, 2020

		Overall attitude				
Characteristics	Category	Favorable	Unfavorable	COR(95%CI)	AOR(95%CI)	P value
Religion	Orthodox	238(65.56%)	11(3%)	5.409(1.025,28.540)	**6.720(1.057,42.729)***	**.044**
	Muslim	42(11.6%)	4(1.1%)	2.625(.409,16.831)	2.746(.350,21.540)	.336
	Protestant	56(15.4%)	2(0.56%)	7.000(.861,56.895)	6.419(.653,63.054)	.111
	Others	8(2.2%)	2(0.56%)	1	1	
Heard/seen information about blood donation	Yes	331(91.2%)	17(4.7%)	2.995 (.625,14.347)	2.308(.431,12.358)	.329
	No	13(3.6%)	2(0.56%)	1	1	
Departmental grouping	Natural	138(38%)	5(1.37%)	2.800 (.857,9.144)	2.409(.652,8.894)	.187
	EiABC	137(37.7%)	7(1.93%)	1.986 (.670,5.887)	1.789(.576,5.557)	.315
	Social	69(19%)	7(1.93%)	1	1	
Overall knowledge	Poor	104(28.65%)	12(3.3%)	.253 (.097,.660)	**.330(.118,.919)***	**.034**
	Good	240(66.1%)	7(1.93%)	1	1	

* = Significant association at p value < 0.05

Table 7: Factors associated with practice of blood donation among non-health science students of AAU, 2020

		Overall practice				
Characteristics	Category	Ever donate	Not ever donate	COR(95%CI)	AOR((95%CI)	P value
Residence	Urban	39(10.7%)	12(3.3%)	1.769(.969,3.231)	1.162(.463,2.913)	.750
	Rural	45(12.4%)	267(73.6%)	1	1	
Father	Literate	70(19.3%)	208(57.3%)	1.707(905,3.217)	1.129(.377,3.382)	.829
	Illiterate	14(3.85%)	71(19.5%)	1	1	
Mother	Literate	66(18.2%)	196(54%)	1.553(.869,2.776)	.906(.345,2.380)	.842
	Illiterate	18(5%)	83(23%)	1	1	
information Heard/seen about blood donation	Yes	83(23%)	265(73%)	4.385(.568,33.847)	1.516(.183,12.533)	.699
	No	1(0.27%)	14(3.9%)	1	1	
Departmental grouping	Natural	40(11%)	103(28.4%)	1.720(.867, 3.413)	1.495(.629,3.552)	.363
	EiABC	30(8.26%)	114(31.4%)	1.165(.575,2.360)	.981(.415,2.320)	.966
	Social	14(3.85%)	62(17%)	1	1	
Taken part in BD campaign	Yes	39(10.7%)	12(3.3%)	19.283(9.386,39.616)	**19.485(9.082,41.802)***	**.000**
	No	45(12.4%)	267(73.6%)	1	1	
Overall knowledge	Poor	11(3%)	105(29%)	.250(.127,.492)	**0.323(0.144,0.726)***	**.006**
	Good	73(20%)	174(48%)	1	1	
Overall attitude	Unfavorable	1(0.27%)	18(5%)	.175(.023,1.329)	.213(.019,2.392)	.210
	Favorable	83(23%)	261(72%)	1	1	

6. DISCUSSION

In this study, 68% of respondents had good knowledge towards blood donation. This finding is lower than a study conducted in Iraq (medical students) , Malaysia & AAU health science students and Arsi university Health science students where 73%, 97. 1%, 83.7% & 79.4% of the respondents had good knowledge towards blood donation respectively (11,12,16,17). This difference could be from the fact that most of the studies in other places were conducted among medical and health science students. In contrary the level of knowledge of this study was higher than the study conducted in ASTU university Non- Health science students where 13.9% of the respondents had good knowledge (17). This could be due to increased study participants and easily accessibility of blood banks in the current study.

Only 40% the study participants knew the volume of blood to be donated once while 34.2% knew minimum weight allowed. This was lower than the study done in Addis Ababa University Health Science students which was 91.4% and 90.4% respectively(16). This was also lower than the study done in Udaipur city of Rajasthan where 33.33% and 84.66% of the respondents had knowledge on the minimum weight, and volume of blood collected once respectively(14). The explanation for this may be because the other studies were conducted in health science students.

In our study about 94.8% respondents had good attitude towards blood donation. This study was similar with the study conducted in Tanzania which was about 94.7%(15) and higher than previous studies conducted in India , Iraq ,Malaysia and Addis Ababa University which were 57.8% ,68.7% 88.8% and 68% respectively(11,12,18,16). A study done in Addis Ababa University all of them were willing to donate in the future if called upon or reminded to do so. In this study, however, about 38.3% of the participants were not willing (16) .The explanation could be lack of knowledge about blood donation and socio demographic differences.

In the current study less than quarter, 23.1% of the respondents had ever donated blood at least once. This was similar with studies done in Nepal(23.4%) and Addis Ababa University health science students (23.4%) (13,16) .This was higher than the studies conducted in Iraq (13%) (11) and Udaipur city of Rajasthan (14%) (14) and lower than the studies conducted in India (47.5%), Malaysia (29.7%) , Namibia (28%) and Nigeria (35.4%) (19,12,20,21). Such differences in blood donation practice could be attributed to socio-cultural factors, differences in knowledge, lack of awareness creation and campaigns by NBBS and misconception/ fear about blood donation.

Concerning what motivates them for blood donation, 74.8% were motivated by moral duty. This was similar with study conducted in health science students of Addis Ababa University which was about74% (16). Regarding to the reasons for not donating were; Fear of blood donation (29.7 %), Never thought of it (23.7%), feeling of medically unfit (16.5%) and My blood will be sold (4.3%) . This was in agreement with studies done in Nepal ,Iraq, India, Rajasthan ,Namibia ,Nigeria and Addis Ababa University where Fear of blood donations, never thought of it, medically unfit, lack of information and not approached were the most commonly mentioned reasons for not donating blood (13,11,19,14,20,21,16).

On multivariate analysis Religion and information Heard/seen about blood before were associated with increased level of knowledge, which was comparable to study conducted in ASTU and Arsi University where religion was significantly associated with increased level of knowledge towards voluntary blood donation (17), but factors like age ,gender, year of study and family educational status which were predictors level of knowledge in other studies were not found to be associated in this study (16,17,23). This may be explained due to lower sample size in this study.

Religion and knowledge were found to be statistically significant predictors of level of attitude. This was in agreement with study done in Ambo university where knowledge was significantly associated with increased level of attitude towards voluntary blood donation (24). This study also revealed gender was not associated with increased level of attitude which is similar with study conducted in Iran (23) and in disagreement with a study conducted in Addis Ababa University health science students where being male increases the odds of level of attitude (16).

Having taken part in blood donation campaign and good knowledge about blood donation increased the odds of practice of respondents towards voluntary blood donation. This was in agreement with study conducted in Nepal where knowledge and taking part in blood donation campaigns were significant associated factors to level of practice (25). But this was in disagreement with studies done in Tanzania and samara university where knowledge was not associated with practice of blood donation (15,10). In this study age, gender, department and religion were not associated to practice while they were associated in other studies (10,16). This may be due to lower sample size in this study and sociodemographic differences.

7. CONCLUSION

Significant numbers of students in this study have poor knowledge and practice of blood donation while the level of attitude is good. Only religion, information Heard/seen about blood donation before, and departmental grouping were associated with the level of knowledge. Religion and knowledge of the participants were associated with the level of attitude. Having taken part in blood donation campaigns and good knowledge about blood donation increased the odds of the practice of respondents towards voluntary blood donation. The majority of blood donors were motivated for moral satisfaction. Fear of blood donation, never thought of it and feeling of medically unfit were mentioned as reasons for not donating blood.

8. STRENGTH AND LIMITATION OF THE STUDY

8.1 Strength of the study

- Study participants were selected using stratified sampling. This makes the study more representatives by giving each stratum a proportional allocation.
- completeness of questionnaires

8.2 Limitation of the study

- The cross-sectional nature of study limits the study to show causal association.
- Since the study is institution -based, it may not give us the clear picture of community status of blood donation.
- Financial constraints

9. RECOMMENDATIONS

- Ethiopian Red Cross society should work in collaboration with Addis Ababa University to improve the low level of blood donors among non-health science students.

- National Blood Bank Service & Addis Ababa blood bank jointly should work with the university in strengthening awareness creation &organizing blood donation campaigns.

- The University should encourage clubs to increase the number of students taking part in blood donation campaigns as part of organizing or campaign member.

- The university should organize different events to increase students' level of knowledge and the number of blood donors.

- Further studies need to be conducted on this matter to identify more gaps especially in a community-based setting with mixed methods.

10. REFERENCES

1. World Health Organization, International Federation of Red Cross and Red Crescent Societies. Towards 100% voluntary blood donation: a global framework for action [Internet]. 2010 [cited 2019 Nov 2]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK305667/

2. WHO | World Blood Donor Day, 14 June 2014 [Internet]. WHO. [cited 2019 Nov 2]. Available from: http://www.who.int/campaigns/world-blood-donor-day/2014/en/

3. Blood Safety [Internet]. WHO | Regional Office for Africa. 2018 [cited 2019 Nov 10]. Available from: https://www.afro.who.int/health-topics/blood-safety

4. Mvere D, Weltgesundheitsorganisation, editors. Manual on the management, maintenance and use of blood cold chain equipment. Geneva; 2005. 92 p. (Safe blood and blood products).

5. World Health Organization. Global status report on blood safety and availability, 2016. [Internet]. 2017 [cited 2019 Nov 10]. Available from: http://apps.who.int/iris/bitstream/10665/254987/1/9789241565431-eng.pdf

6. A L, Jb N, Omj K, C Tayou T. Blood safety and availability in the WHO African region. Glob Surg [Internet]. 2018 [cited 2019 Nov 27];4(4). Available from: https://www.oatext.com/blood-safety-and-availability-in-the-who-african-region.php

7. Blood safety and availability [Internet]. 2016 [cited 2019 Nov 2]. Available from: https://www.who.int/news-room/fact-sheets/detail/blood-safety-and-availability

8. Lownik E, Riley E, Konstenius T, Riley W, McCullough J. Knowledge, attitudes and practices surveys of blood donation in developing countries. Vox Sang. 2012 Jul;103(1):64–74.

9. ethiopia_update-sheet-on-blood-safety_2014_final.pdf [Internet]. [cited 2019 Nov 23]. Available from: https://www.afro.who.int/sites/default/files/2017-05/ethiopia_update-sheet-on-blood-safety_2014_final.pdf

10. Tadesse W, Ayalew Y, Yisma E, Liben ML, Wudu M. Knowledge, Attitude, Practice and Associated Factors towards Voluntary Blood Donation among Regular Health Science Students of Samara University, Ethiopia. Health Sci J [Internet]. 2018 [cited 2019 Nov 10];12(1). Available from:

http://www.hsj.gr/medicine/knowledge-attitude-practice-and-associated-factors-towards-voluntary-blood-donation-among-regular-health-science-students-of-samar.php?aid=21795

11. Al-Asadi JN, Al-Yassen AQ. Knowledge, attitude and practice of blood donation among university students in Basrah, Iraq: A comparison between medical and non-medical students. Asian J Med Sci. 2018 Oct 29;9(6):62–7.

12. Elnajeh M, Ghazi HF, Abdalqader MA, Baobaid MF. Knowledge, attitude and practice towards blood donation and its associated factors among university students in Shah Alam, Malaysia. Int J Community Med Public Health. 2017 Jun 23;4(7):2230.

13. Pokhrel B, Pandey N, Parajuli-Pokhrel K. Knowledge, Attitude and Practice regarding voluntary blood donation among the bachelor level students of Chitwan, Nepal. Janaki Med Coll J Med Sci. 2015;3(2):21–8.

14. Lal Solanki S, Mali A. Study on Blood Donation Among Medical Students of Udaipur City, Rajasthan. Int J Curr Res Rev. 2018;10(16):1–4.

15. Elias E, Mauka W, Philemon RN, Damian DJ, Mahande MJ, Msuya SE. Knowledge, Attitudes, Practices, and Factors Associated with Voluntary Blood Donation among University Students in Kilimanjaro, Tanzania. J Blood Transfus [Internet]. 2016 [cited 2019 Nov 23];2016. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5192290/

16. Chalachew M, Andualem D, Megdelawit T, Tesfalem Teshome T, Hawult T. THE LEVEL AND ASSOCIATED FACTORS OF KNOWLEDGE, ATTITUDE AND PRACTICE OF BLOOD DONATION AMONG HEALTH SCIENCE STUDENTS OF ADDIS ABABA UNIVERSITY. 2014;1(10):105-18. Int J Med Health Sci Res. 2014;Vol.1:pp.105-118.

17. Gebresilase HW, Fite RO, Abeya SG. Knowledge, attitude and practice of students towards blood donation in Arsi university and Adama science and technology university: a comparative cross sectional study. BMC Hematol. 2017 Nov 21;17(1):20.

18. Govindasamy V, Sivasankaran D, Purushothaman V. Knowledge, attitude and practice regarding blood donation among medical students of Tamil Nadu- a cross sectional study. Int J Community Med Public Health. 2019 Sep 26;6(10):4583.

19. Giri PA, Phalke DB. Knowledge and Attitude about Blood Donation Amongst Undergraduate Students of Pravara Institute of Medical Sciences Deemed University of Central India. Ann Trop Med Public Health. 2012 Nov 1;5(6):569.

20. Ojulong J, Muhoza J, Monteiro L. Barriers that prevent health science students from donating blood in an African setting. Int J Community Med Public Health. 2016 Jan 1;3544–7.

21. I. U N, N. UC, O. OWJ, J. UC. Pattern of Blood Donation Practices among Students of a Nigerian University. Int Blood Res Rev. 2019 Jun 26;1–8.

22. Ahmed Z, Zafar M, Khan A, Anjum M, Siddiqui M. Knowledge, Attitude and Practices about Blood Donation among Undergraduate Medical Students in Karachi. J Infect Dis Ther. 2014 Mar 29;2:134.

23. Majdabadi HA, Kahouei M, Taslimi S, Langari M. Awareness of and attitude towards blood donation in students at the Semnan University of Medical Sciences. Electron Physician. 2018 May 5;10(5):6821–8.

24. Dereje Bayissa Demissie AN. Knowledge, Attitude and Practice on Voluntary Blood Donation and Associated Factors among Ambo University Regular Students, Ambo Town, Ethiopia. J Community Med Health Educ [Internet]. 2014 [cited 2019 Dec 4];04(05). Available from: https://www.omicsonline.org/open-access/knowledge-attitude-and-practice-on-voluntary-blood-donation-and-associated-factors-among-ambo-university-regular-students-ambo-town-ethiopia-2161-0711-4-315.php?aid=35869

25. Amatya M. Study on knowledge, attitude and practice of blood donation among students of different colleges of Kathmandu, Nepal. 2013.

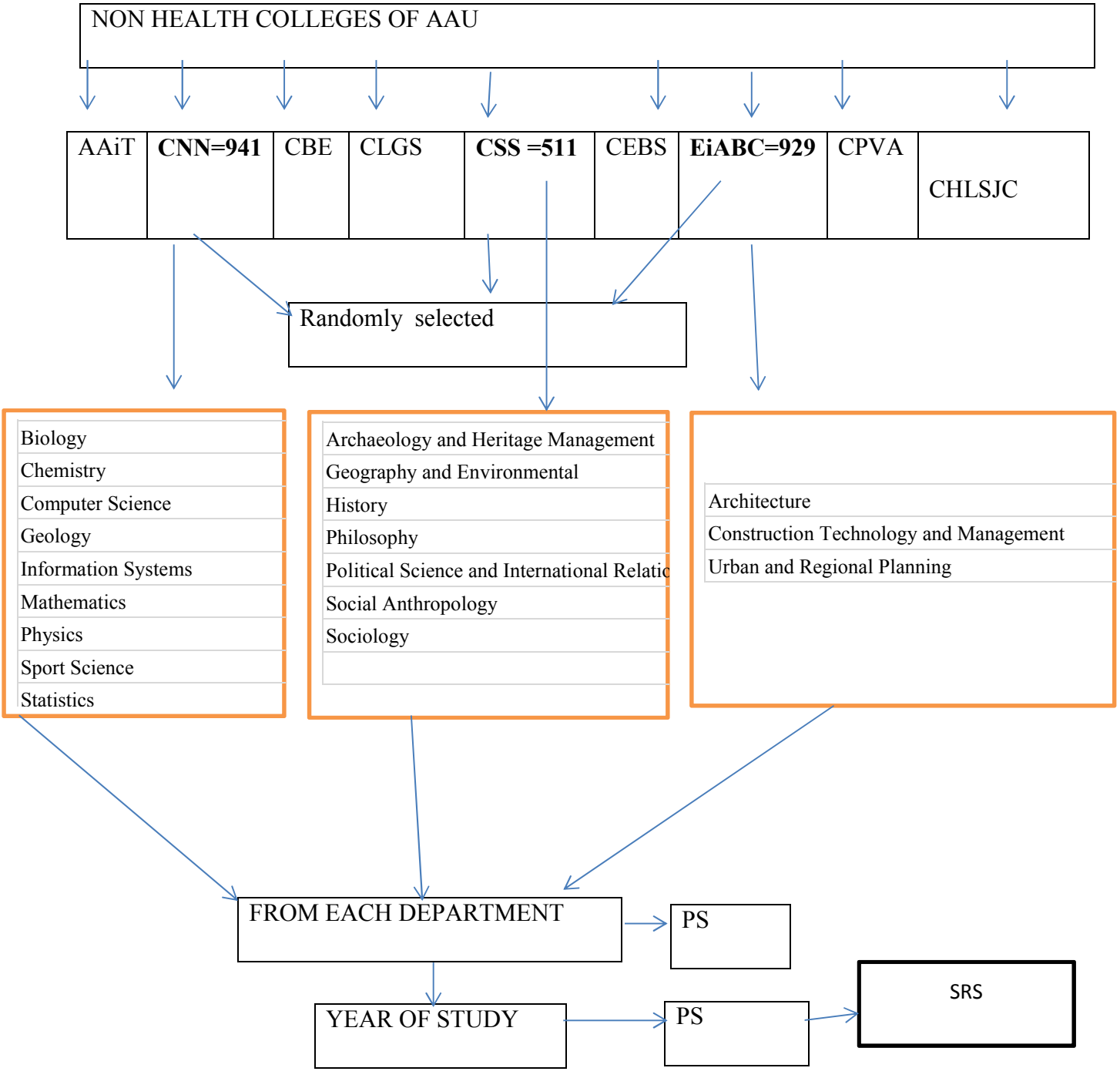
26. Alsalmi MA, Almalki HM, Alghamdi AA, Aljasir BA. Knowledge, attitude and practice of blood donation among health professions students in Saudi Arabia; A cross-sectional study. J Fam Med Prim Care. 2019 Jul 1;8(7):2322.

27. Nalini Y, Gaonkar S, Basavarajegowda A, Patil S. Assessment of Knowledge, Attitude and Practice of Blood Donation among Medical Students in Bangalore Karnataka, India. Int J Physiol. 2015 Jan 1;3:5.

11. ANNEXES

Annex 1: Sampling method

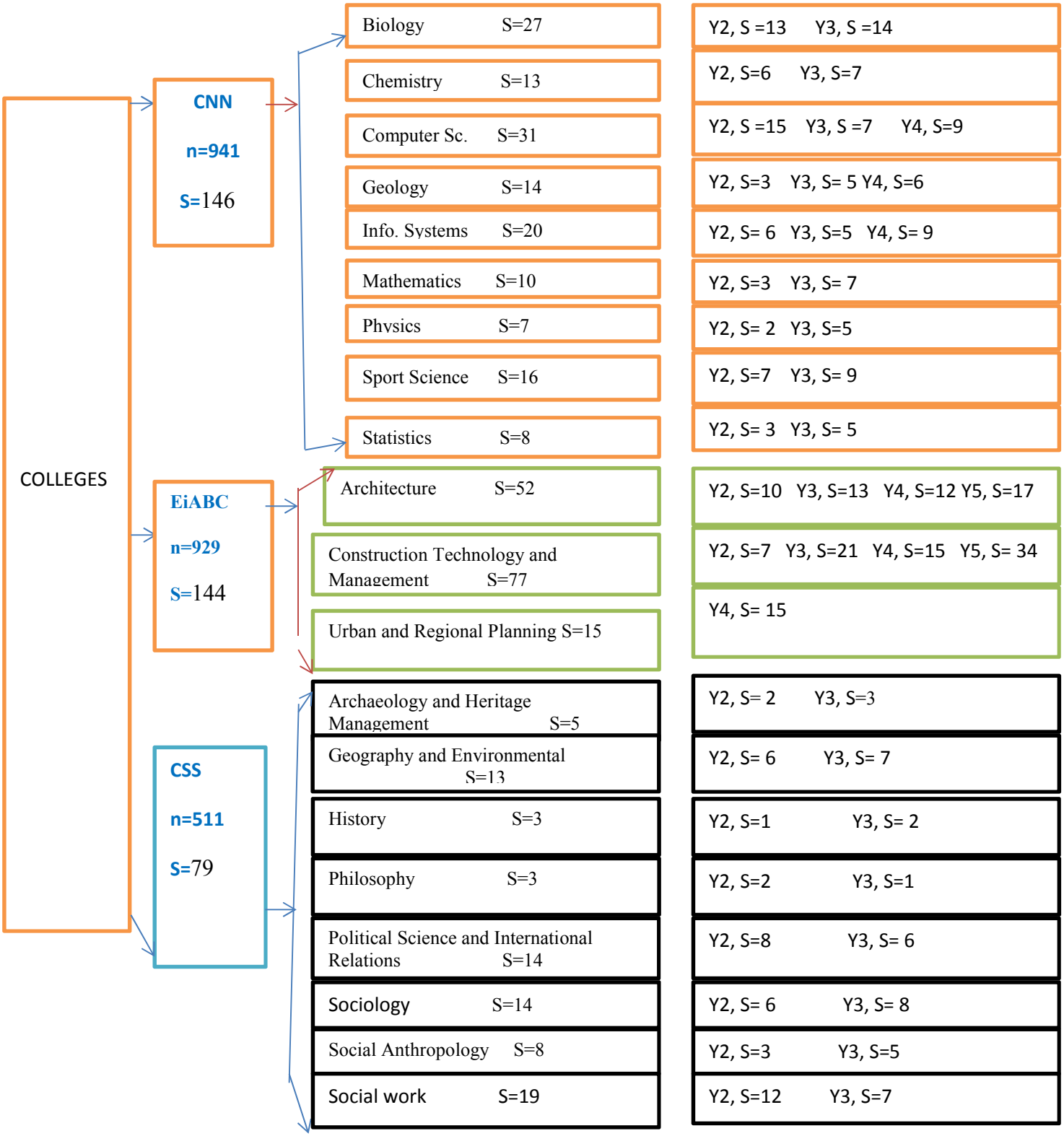
Figure 4: Sampling method



SRS-Simple Random Sampling **PS-Proportional Sampling**

Annex 2: Sampling procedure

Figure 5: Schematic illustration of sampling procedure



Annex 3: English version questionnaire

A questionnaire designed to gather information on regard to knowledge, attitude, practice and Associated factors of blood donation among students of AAU.

INFORMATION SHEET

INTRODUCTION

I …… am assigned as data collector on behalf of Tesfay Teklu, who is a post graduate student at Addis Ababa University, School of Medicine .The aim of the study is to assess the knowledge, attitude and practice of blood donation and associated factors. You are selected randomly your participation i& n the study is completely voluntarily based.

You can decide not to participate in the study or you can interrupt the study at any time during the interview. If you participate in the study, the information you give helps us to understand the current situation of knowledge, attitude and practice of blood donation so that it serves as input for policy makers and programmers planning and designing interventions to improve problems. The interview takes about 15-20 minutes. Your name will not be written in the questionnaire and I assure you that all information you give will be kept strictly confidential.

Please contact the principal investigator for any further explanation through the address below: **TESFAY TEKLU – 09 14416244/ tesfaytkl@ gmail.com**

Written Consent

Are you willing to participate in the study? Yes □ No □

If "yes", would you put your signature?

I, the undersigned, am clear about the objectives of the study and I have decided to participate in the study.

Participant's signature……....

Interviewer's name& Signature……

Data collection supervisor name & Signature…….

Date of interview …….

Questionnaire ID number…….

No.	Question	Response(Options)	Remark
Part i: socio-demographic characteristics			
101	How old are you?	[__ __] years	
102	What is your sex?	1.Male □ 2. Female □	
103	What department are you attending now?	.....	
104	What class year are you attending?	.....	
105	What is your marital status?	1.Single □ 2.Married □ 3.Separated □ 4.Widowed □ 5.Divorced □	
106	What is your religion?	1. Orthodox □ 2. Muslim □ 3. Protestant □ 4. Catholic □ 5. Other (specify)……..	
107	What was your previous area of residence?	1. Urban □ 2. Rural □	
108	Have your father ever attended school?	1 .Yes □ 2. No □	If "yes", skip to Q. 110
109	If "Yes" to Q. 108, What is the highest level of school your father attended?	1. Primary □ 2. Secondary □ 3. Technical/Vocational □ 4.Higher (College/University) □	
110	Have your mother ever attended school?	1 .Yes □ 2. No □	If "yes", skip to Q. 112
111	If "Yes" to Q. 110, What is the highest Level of school your mother attended?	1. Primary □ 2. Secondary □ 3. Technical/Vocational □ 4. Higher (College/University)□	

Part two :Knowledge about blood donation

201	Have you heard or seen about blood donation?	1. Yes□ 2. No □	If no, skip Q. 202

202	If your answer to Q. no. 201 is "yes", from where did you hear or see those messages? (More than one answer is possible.)	1.Health professionals/facility □ 2. Print media (Newspaper, leaflet, brusher, billboard) □ 3. Electronic media (TV, Radio) □ 4. School/University □ 5. Friends/ Family, relatives □ 6. Religious worship place □	
203	Do you know common blood groups?	1.Yes 2.No	
204	Do you know your blood group?	1.Yes 2.No	
205	What is your blood group?	1.A+ 5.A- 2.B+ 6.B- 3.AB + 7.AB- 4.O+ 8.O-	
206	Can a person be infected by receiving blood transfusion?	1.Yes 2.No	If no skip Q. 207
207	What disease are transmissible by blood transfuse?	1.HIV 2.HBV 3.HCV 4.Syphilis 5.Malaria 6.CMV	
208	How often individual donate?	1.Weekly 2.Monthly 3.Three monthly 4.Six monthly 5.Annually 6.Don't know	
209	Who should not donate blood?	1.Men 2.Women 3.Young<18yrs 4.Old >60yrs 5.Vulnerable groups 6.Healthy 7.Diseased	
210	What volume of blood is collected during each donation	1.<500mls 2.500-1000mls 3.Don't know	
211	What is the duration of a donation process?	1.20 min 2.20-60min 3.don't know	

212	What is the minimum weight limit	1.<45 Kg 2.45Kg) 3.>45Kg 4.Don't know	
Part 3:Attitude towards blood donation			
301	What do you think about blood donation?	1.Good □ 2. Bad □ 3.No idea □	
302	What do you think is the best source of blood donation?	1.Voluntary donor □ 2.replacement donor □ 3.remunerated donor □ 4.self-donor □ 5.don't know □	
303	Can something harmful happen to a blood donor during or after Blood donation?	1.Yes □ 2.No □ 3.I don't know □	
304	What can happen to a blood donor during or after donation?	1.Contract infection □ 2.temporary weakness □ 3 feel sick □	
305	Do you think that patient's relative Should be asked to donate?	1.Yes 2.No 3.I don't know	
306	Will you donate if called upon or reminded to do so?	1.Yes 2. No	
PART 4 - PRACTICE OF BLOOD DONATION			
401	Have you ever donated blood Before?	1.Yes □ 2. No □	
402	If your answer to Q. no.401 is "Yes", how many times do you donate?	1. Once □ 2. Twice □ 3.If more than two times(specify)_____	
403	If your answer to Q. no.401 is "Yes", what prompted you? (More than one answer is Possible.)	1. A sick person needed □ 2. Moral satisfaction, altruism □ 3.Earning profit in cash / kind □ 4. For free health checkup□ 5. Motivated by friend /family donor □ 6.Media appeal □ 7.others(specify)	

404	If your answer to Q. no.401 is "No", what was the reason? (More than one answer is Possible.)	1. I have no information □ 2. Fear of blood donation □ 3. Medically unfit □ 4. Under age □ 5. Cultural or religious rejection □ 6. Lack of time □ 7. It takes long time □ 8. Inaccessibility of the service □ 9. Never thought of it □ 10. Parental or peer opposition □ 11. Never had the opportunity □ 12. My blood will be sold □ 13. Others specify……	
405	Have you taken part in Blood donation campaigns?	1.Yes 2. No	

Thank you very much!!!

Annex 4: በአማርኛ የተዘጋጀ መጠይቅ

ይህ መጠይቅ የተዘጋጀዉ የአ/አ ዩኒቨርሲቲ ተማሪዎች በደም ልገሳ ያላቸዉ እዉቀት፣ አመለካከተና ልምድ ላይ ያተኮረ መረጃ ለመሰብሰብ የተዘጋጀ ነዉ::

መግቢያ

እኔ .....የ አ/አ ዩኒቨርሲቲ የድንገተኛ ህክምና ተማሪ በሆነዉ ተስፋይ ተክሉ የተዘጋጀ መጠይቅ

መርጃ ለመሰብበስ የተወከልኩ ነኝ:: የዚህ ጥናት ዋና ዓላማ በደም ልገሳ ያላቸዉ እዉቀት፣

የደም-ልገሳ አመለካከታትና ልምድ ሁኔታና ተያያዥ ነገሮች ላይ ያተኮረ መረጃ ለመሰብሰብ ነዉ:: የአንተ/ቺ በዚህ

ጥናት ላይ መሳተፍ በዘፈቀደ የተመረጠ ሲሆን ግን ያንተ/ቺን ሙሉፈቃደኝነት የሚጠይቅ ነዉ::በጥናቱ ለመሳተፍ

ከተስማማህ/ሽ በጎላ መሃል ላይ ትተህ/ሽ የመዉጣት ሙሉ መብት አለህ/ሽ:: ሆኖም ግን ያንተ/ቺ በዚህ ጥናት መሳተፍ

በደም ልገሳ ያላቸዉ እዉቀት፣ የደም-ልገሳ አመለካከታቸዉና ተግባር ነባራዊ ሁኔታ

ለመረዳት ከማገዙም በላይ ተያያዥ ችግሮችን ለመፍታት ዕቅዶችን፣ ፕሮግራሞችና ፓሊሲዎች ለመቅረፅ ይረዳል::ይህን

ቃለ-መጠይቅ ለመጨረስ የሚፈጀዉ ጊዜ በአማካኝ ከ 15-20 ደቂቃ ይሆናል::ስምህ/ሽ በመጠይቁ ላይ አይጠቀስም፤

እንዲሁም የምትሞላ/ዪዉ መረጃ በሚስጥርነት ይጠበቃል፡ከጥናቱ ዉጪ ለሌላ ዓላማ አይዉልም::

ለ በለጠ መረጃ የጥናት ቡድኑ ዋና መሪ ከዚህ በታች በተጠቀሰዉ አድራሻ ማግኘት ይችላሉ::

ተስፋይ ተክሉ :- 09 14 416244 / **tesfaytkl@ gmail.com**

የስምምነት መሙያ ቅፅ

በዚህ ጥናት ለመሳተፍ ፈቃደኛ ነህ/ሽ? አዎ ☐ አይደለሁም ☐

መልስህ/ሽ "አዎ" ከሆነ መስማማትህ/ሽን በፊርማህ/ሽ ብታረጋግጥ/ጪ?

እኔ የፈረምኩት ግለሰብ የጥናቱ ዋና ዓላማ ገብቶኝ በመጠይቁ ለመሳተፍ መስማማቴን በፊርማዬ አረጋግጣለሁ::

የተጠያቂ ፊርማ .....

የጠያቂ ስምና ፊርማ .....

የሱፐርቫይዘር ስምና ፊርማ.....

መጠይቅ የተሞላበት ቀን .....

የመጠይቅ ቅፅ መለያ ቁጥር .....

ተ.ቁ	ጥያቄ	አማራጭ	ሽግግር
ክፍል 1- ማሕበራዊና ስነ-ሕዝባዊ ሁኔታ በተመለከተ			
101	እድሜህ/ሽ ስንት ነዉ?	..... አመት	
102	ፆታ	1. ወንድ □ 2. ሴት □	
103	የትምህርት ዘርፍህ/ሽ (ዲፓርትመንት)	.....	
104	የጥናት አመትህ/ሽ	.....	
105	የጋብቻ ሁኔታ ምን ይመስላል?	1. ያላገባ □ 2. ያገባ □ 3. ተለያይቶ የሚኖር □ 4. ባል/ሚስት የሞተበ/ባት □ 5. የፈታ/ች □	
106	የምን ሃይማኖት ተከታይ ነህ/ሽ?	1. ኦርቶዶክስ □ 2. ሙስሊም □ 3.ፕሮቴስታንት □ 4. ካቶሊክ □ 5. ሌላ ካል ይግለፁ……	
107	ወደ ዩኒቨርሲቱ ሳትገባ/ቢ በፊት የት ትኖር ነበር?	1. ከተማ □ 2. ገጠር □	
108	አባትህ/ሽ መደበኛ ትምህርት ተምረው ያውቃሉ?	1. አዎ □ 2. አይደለም □	“አይደለም” ካሉ ወደ ጥያቄ 111 ይሻገሩ።
109	ለ ጥያቄ ቁ. 109፤ መልሰዎ አዎ ከሆነ የአባትህ/ሽ የትምህርት ደረጃ ምን ያህል ድረስ ነዉ?	1. አንደኛ ደረጃ (1 - 8 ክፍል) □ 2. ሁለተኛ ደረጃ (9 - 12 ክፍል) □ 3. ቴክሊክና ሙያ □ 4. ከፍተኛ ደረጃ (ኮሌጅ/ ዩኒቨርሲቲ) □	
110	እናትህ/ሽ መደበኛ ትምህርት ተምረው ያውቃሉ?	1. አዎ □ 2. አይደለም □	“አይ” ካሉ ወደጥያቄ 113 ይሻገሩ።
111	የእናትህ/ሽ የትምህርት ደረጃ ምን ያህል ድረስ ነዉ?	1. አንደኛ ደረጃ (1 - 8 ክፍል □ 2. ሁለተኛ ደረጃ (9 - 12 ክፍል) □ 3. ቴክሊክና ሙያ □ 4. ከፍተኛ ደረጃ (ኮሌጅ/ ዩኒቨርሲቲ) □	
ክፍል 2- የደም ልገሳ እዉቀት			
201	ከዚህ በፊት ስለደም ልገሳ መልእክት ሰምተህ/ሽ ወይም አይተህ/ሽ ታዉቃለህ/ሽ?	1. አዎ □ 2. አይደለም □	“አይ” ካሉ ወደ ጥያቄ ቁጥር 203 ይሻገሩ።
202	ለጥያቄ ቁጥር 201 መልሰዎ “አዎ” ከሆነ፤ መልዕክቱን ከየት ነበር ያገኘህ/ሽዉ? (ከአንድ በላይ መልስ መስጠት ይቻላል)	1. ከጤና ማዕከል □ 2. ከሕትመት ሚድያ(መፅሄት፣ በራሪ ወረቀት፣ቢል ቦርድ) □ 3. ከኤሌክተሮኒክ ሚድያ (ቴሌቪዥን፣ሬድዮ) □ 4. ትምህርት ቤት □ 5. ከቤተሰብ/ዘመድ/ጎደኛ □ 6. የሃይማኖት አምልኮ ቦታ □	

203	የደም ዓይነቶች ታውቃለህ/ሽ?	1. አዎ □ 2. አላውቅም □	
204	የራስህ/ሽ የደም ዓይነት ታውቃለህ/ታወቂያለሽ?	1. አዎ □ 2. አላውቅም □	
205	የደምህ/ሽ ዓይነት ምንድ ነው?	1.ኤ + 5.ኤ- 2.ቢ + 6. ቢ- 3.ኤቢ+ 7. ኤቢ- 4.ኦ+ 8. ኦ-	
206	ደም የሚወስድ ሰው በበሽታ ሊያዝ ይችላል ?	1. አዎ □ 2. አይደለም □	“አይ” ካሉ ወደጥያቄ 208 ይሻገሩ፡፡
207	ደም በመውሰድ ሊተላለፍ የሚችል በሽታ? (ከአንድ በላይ መልስ መስጠት ይቻላል)	ነ.ኤች አይ ቪ 2.ሄፓታይቲስ ቢ ቫይረስ 3. ሄፓታይቲስ ሲ ቫይረስ 4.ጨብጥ 5.ወባ 6.ሳይክሎ ሜጋሎ ቫይረስ	
208	አንድ ሰዉ በምን ያህል የጊዜ ገደብ ዉስጥ ደም መለገስ ይችላል?	1. በየሳምንቱ 2. በየወሩ 3.በየ3ወሩ 4. በየ6 ወሩ 6. በየዓመቱ 7. አላዉቅም	
209	ማነው ደም መለገስ የሌለበት?(ከአንድ በላይ መልስ መስጠት ይቻላል)	1.ወንዶ ች 2. ሴቶች 3.ወጣቶች<18 ዓመት 4. አዛውንቶች>60 ዓመት 5.ተጋላጭ ወገኖች 6. ጤነኞች 7.የታመሙ	
210	ከደም ለጋሽ የሚወሰደዉ ደም መጠኑ በሚሊሊትር ምን ያህል ይሆናል?	1.<500ሚሊ 2.500-1000ሚሊ 3. አላዉቅም	
211	አንድ ጊዜ ደም ለመለገስ ምን ያህል ጊዜ ይፈጃል?	1.20 ደቂቃ 2.20-60ደቂቃ 3. አላዉቅም	
212	ደም ለመለገስ ዝቅተኛው ክብደት ስንት ነው?	1. <45 ኪ.ግ 2.45ኪ.ግ 3.>45ኪ.ግ 4. አላዉቅም	
ክፍል 3- የደም ልገሳ አመለካከት			
301	ስለ ደም ልገሳ ምን ታስባለህ/ሽ?	ነ.ጥሩ ነው □ 2. መጥፎ ነው □ 3.ሐሳብ የለኝም □	

302	የደም ልገሳ ዋና ምንጭ ከ ምን ይመስልሃል/ይመሰልሻል?	ነ.ከፈቃደኝነት ለጋሾች □ 2.ከተኪ ለጋሾች □ 3.ከከፍያ ለጋሾች □ 4.ከራስ ለጋሾች □ 5.አላዉቅም □	
303	በ ደም ልገሳ ጊዜ ወይም ከልገሳ ብኃላ ደም ለጋሹ ጉዳት ሊደርስበት ይችላል ብለው ያስባሉ?	1. አዎ □ 2. አይደለም □ 3.አላዉቅም	
304	በ ደም ልገሳ ጊዜ ወይም ከልገሳ ብሃላ ለደም ለጋሹ ምን ሊደርስበት ይችላል?	በበሽታ መያዝ □ ጊዚያዊ ድካም□ የህመም ሰሜት□	
305	የታካሚ ቤተሰብ ደም እንዲሰጡ መጠየቅ አለባቸው ብለው ያስባሉ?	1. አዎ □ 2. አይደለም □ 3.አላዉቅም	
306	ደም እንዲለግሱ ቢደወልልዎ ይለግሳሉ?	1. አዎ □ 2. አይደለም □	

ክፍል 4- የደም ልገሳ ተግባር/ልምድ			
401	ከዚህ በፊት ደም ለግስህ/ሽ ታዉቃለህ/ሽ?	1. አዎ □ 2. አይደለም □	‘‘አይደለም’’ ካሉ ወደ ጥ.ቁ. 404 ይሻገሩ።
402	ለጥያቄ ቁጥር 401 መልስዎ ‘‘አዎ’’ ከሆነ፤ስንት ጊዜ ለግሰዋል?	1. አንድ ጊዜ □ 2. ሁለት ጊዜ □ 3.ከ ሁለት ጊዜ በላይ ከሆነ (ግለፅ).....	
403	ለጥያቄ ቁጥር 401 መልስዎ ‘‘አዎ’’ ከሆነ፤ ደም ለመለገስ ያለሳሳህ/ሽ ምክንያት ምን ነበር? (ከአንድ በላይ መልስ መስጠት ይቻላል)	ነ.የታመመ ሰዉስላስፈለገዉ □ 2.የህሊና እርካታ ለማግኘት □ 3. ጥቅም ለማግኘት □ 4. የጤና ምርመራ ለማድረግ □ 5. ደም ለጋሽ ቤተሰብ/ጉዋደኛ ቀስቅሶኝ □ 6. የሚድያ ጥሪ ሰምቼ □ 7. ሌላ ካለ ይግለፁ.....	

404	ለጥያቄ ቁጥር 401 መልስዎ “አይደለም” ከሆነ፤ ምክንያትህ/ሽ ምንድነዉ? (ከአንድ በላይ መልስ መስጠት ይቻላል)	1. እዉቀቱ ስለሌለኝ 2 ፈርቼ 3. የጤና ችግር ስላለብኝ 4. እድሜዬ ስላልደረሰ 5. ባህሌ/ሃይማኖቴ ስለማይቀበለዉ 6. ጊዜ ስለሌለኝ 7. ደም ልገሳ ብዙ ሰዓት ስለሚፈጅ 8. የደም ልገሳ ማዕከል ስለሚርቅ 9. አስቤበት አላዉቅም 10. ቤተሰቤ/ጉዋደኛዬ ስለማይደግፉት 11. እድሉ ስላላገኘሁ 12. ደም ባንክ “ደሜን ይሸጣል” ብዬ ስለማስብ 13. ሌላ ካለ ይግለፁ……	
405	በደም ልገሳ ዘመቻ ተሳትፈህ/ሽ ታውቃለህ/ሽ?	1. አዎ □ 2. አላውቅም □	

ከልብ አመሰግናለሁ::