



Evaluation of return rate and return determinants among first time
voluntary blood donors in Ethiopian national blood bank service

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This thesis, by Dagmawit Fantahun is accepted in its present form by the board of examiners as fulfilling for the degree of masters of public health in health system management.

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LIST OF ACRONYMS

AIDS	Acquired immune deficiency syndrome
AOR	Adjusted Odds Ratio
CI	Confidence Interval
COR	Crude Odds Ratio
EFY	Ethiopian Fiscal Year
ENBBS	Ethiopian National Blood Bank Service
FMOH	Federal Ministry of Health
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
PI	Principal Investigator
RBB	Regional Blood Bank
SSA	Sub-Saharan Africa
TTIs	Transfusion Transmissible Infections
WHO	World Health Organization

ABSTRACT

Introduction: -Accessibility of a safe and adequate blood transfusion is a challenge worldwide and even more critical in sub Saharan Africa. 44 % of maternal deaths due to blood loss during child birth, 20% of maternal and 15 % of child death as a result of anemia in Africa region could be managed with a well-timed safe blood transfusion. Though the world health organization (WHO) recommends that blood donation by 2%-3% of the country's population is needed to meet a nation's most basic requirement for blood, in Ethiopia less than 0.5 % of the population donates blood and nationally there are only 10,000 regular blood donors.

Objective:-The aim of this study was to evaluate the return rate and return determinants among first time voluntary blood donors in Ethiopian national blood bank service (ENBBS).

Methods:-To determine first time voluntary blood donors return rate secondary data reviewing was done. To investigate return determinants facility based unmatched case control study design was implemented. The cases were first time voluntary blood donors returned for donation within two years since their index donation whereas controls were those who didn't return. Pretested questionnaire was used to guide a telephonic interview to collect data from 438 samples that were selected randomly from the Ethiopian national blood bank service (ENBBS) donor record server. Filled data was pre coded and entered in Epidata version 3.1 and was exported to STATA version 14 for cleaning and analysis. Descriptive summary measures were used to describe levels of exposure in cases and controls and to assess the presence of association and their significance level a bivariate and multivariate logistic regression analysis were used.

Result:-Reviewing 24,684 first time voluntary blood donor's record the return rate was found to be 37.7% per two years. First time voluntary blood donor return was found more likely to be determined by altruism as a motivational factor for an index donation (AOR=1.96, 95% CI: 1.02-3.64) , positive perceived donation capability (AOR=7.3, 95% CI: 2.9 -15.04), Being aware of previously donated blood volume (AOR=4.8, 95% CI: 2.18 - 8.98).

Conclusion:-Return rate of first time voluntary blood donors in ENBBS was low and return for subsequent donation was found more likely to be determined by donor's altruistic behavior, positive perceived capability and awareness on blood donation process. Therefore working on

donor's awareness on the donation process and promoting encouraging message on building up altruistic motivation could enhance the return of first time voluntary blood donors.

1. INTRODUCTION

1.1 Background

"Blood transfusion is the process of delivering whole blood or blood products (as red blood cells, white blood cells, plasma) into an individual's circulatory system intravenously, to replace lost components of the blood". It is one of the crucial components of health care system as it saves many lives and help patients with critical conditions to live longer life with higher quality(1).

It is estimated that 44 % of maternal deaths due to blood loss during child birth, 20%of maternal and 15 % of child death as a result of anemia in Africa region could be managed with a well-timed safe blood transfusion(2, 3).

Among the three types of blood donors (family replacement donors, paid donors and voluntary non remunerated blood donors) voluntary blood donors mainly regular donors are the first choice of blood transfusion services by reason of low prevalence of transfusion transmissible infections (TTIS)(1, 4-8), high commitment and self-deferrals. This could reduce the discarded blood screened positive and related costs spent for screening. Having a regular group of voluntary donors is also more cost effective than recruiting new one (1).

Globally it is estimated that around 112.5 million of blood donations are collected annually of which approximately half are collected in developed countries where only 19% of the world's population live(9). Taking Whole blood donations per 1,000 population as an indicator for the general availability of blood in a country, low-income countries including Ethiopia has a rate of 2.8 donations/1000 population (range 0.4 – 8.2) which is very low as compared to 36.4 donations/1000 population (range 13.3 – 64.6) in developed countries(10).

The Ethiopian national blood bank service has 25 regional blood banks that supplies more than 50% country's hospitals with blood(11). Currently 19 regional blood banks (RBB) including Addis Ababa collects blood 100% only from voluntary blood donors. In 2008 Ethiopian fiscal year (EFY) out of 139,409 units of blood collected 97% was from voluntary blood donors(12).

1.2 Statement of the problem

Though WHO estimates that blood donation by 2%-3% of the country's population is needed to meet a nation's most basic requirements for blood, less than 0.5% of Ethiopian's population donates blood(1). As there are limited blood donors and the shelf life of the collected blood is very short the service can only meet 52% of hospital demand which lets many patients in need of blood to die or suffer (11).

The national blood bank service have come a long path in ensuring provision of safe and adequate blood. Some strategies implemented were transformation of the blood bank management from Ethiopian red cross society to federal ministry of health (FMOH) and currently being an autonomous body, increasing the number of RBB from 13 in 2006 EFY to 25 in 2008 EFY with a total of 30 mobile blood collection team. With these strategies the ENBBS have managed to increase total blood collection from 95,466 in 2006 EFY to 139,409 in 2008 EFY yet the service only has 10,000 regular donors nationally which lets it to face seasonal blood shortage(11).

The Ethiopian national blood bank planned to collected 175,000 units of blood in 2008 EFY and collected 139,409 units, from this 123,990 units of blood were distributed and 9.3% was discarded (13).Despite the fact that the gap between the intended and achieved could be of different reasons the main one is not having enough pool of regular blood donors. As this donors defined to be the best source of blood in number adequacy and low rate of discarded blood (1) .

Previous studies conducted in Ethiopia evidenced that there is a good knowledge of blood donation and favorable attitude in about 50 % of most study participants but lower donation practice(14-17).Different countries have estimated their donor return rate so as to prepare an informed donor retaining strategy .Determinants for donor return were also assessed and found to be sex, educational status , service delivery, donation experience and some psychological factors(18-24). As Ethiopian's situation might be different from this country's, instead of concluding other countries findings the present study aims at evaluating return rate and assessing the return determinants among first time blood donors attending Ethiopian national blood bank so as to help on the retention strategy of first time voluntary blood donors.

1.3 Significance of the study

The finding of this study would provide the national blood bank the places to act on to retain donors and the mechanism to do so by showing the gaps. The study could also be important to the health care system as whole as it would help to have enough healthier donors for safe supply of blood that keeps up with the increasing demand of blood and blood products. Further it will provide relevant information for concerned partners and policy makers in health sector transformation plan, Ethiopia is implementing in enhancing service quality and equitability. Lastly the present study could help researchers as a baseline for further investigation regarding each factor that has an impact on repeat blood donation.

2. LITERATURE REVIEW

In this section several related literatures to the present study were examined and the return rate of first time voluntary blood donors hierarchically from the Glob to Africa and Ethiopia is presented and the second section covers factors that are associated with the return of voluntary blood donors mainly socio demographic characteristics, knowledge on blood donation, Psychological factors, past experience and blood banks service delivery.

2.1 First time voluntary blood donors return rate

Developed countries mostly collect their blood supply from voluntary blood donors and have a higher number of regular blood donors than developing countries. The 2011 united state of America Blood Collection and Utilization Survey Reported 15,721,000 units of blood were collected of which 9,534,000 were provided by 6,364,000 repeat donors(12). several studies evidenced the return rate of voluntary blood donors to be in fair range in developed countries even though this numbers are very few in consideration of eligible individuals in the respective countries. In US a study examined 1000 whole blood donors return pattern and found the return rate to be 1.32 visits per year for those who didn't experience adverse reaction (23) Two studies conducted in Netherlands shows the country as one of the developed countries having higher voluntary blood donor return rate, which is 82 % in one year among first time blood donor and 56 % average. Both researches were a cohort study that followed blood donors for two years and four weeks after invitation respectively (21, 25). Irrespective of economic development china have lower blood donor return rate of 14% (26). The REDS-II study in china also shows 67.9% of whole blood donors in 2014 were first-time donors(27).

In developing countries as Brazil the estimated voluntary blood donors return rate is 40 % within one year, 53 % within two years whereas 30 % never return to donate (24) but only for first time blood donors the return rate was 28.1 %(20). In Iran a retrospective study found more than half 51% of first time blood donors return to donate blood again (28). Such a study were not done in enough number in Africa making it difficult to compare whereas one study conducted in northern Tanzania found the proportion of repeat donation to be 63.9% (29). In Ethiopia the return rate of

first time blood donors is not yet estimated though the national blood bank service reported the presence of 10,000 regular donors in the country (13).

2.2 Factors affecting the return of voluntary blood donors

Literatures outline different associated factors for the return of voluntary blood donors as certain demographic characteristics, psychological factors, previous donation experience, factors related with service delivered by the blood banks and knowledge about blood donation.

2.2.1 Socio-demographic characteristics

Different literatures have evidenced age, sex and educational level among socio-demographic characteristics to have an impact on the return of voluntary blood donor after their index donation. A cohort study conducted in America where first time donors were followed for 25 months, younger donors of age 16 & 17 found to be most likely to return (30) in Germany also First-time donors aged 18 years were returned for successive donations comparing to older ones (31). A study done in Canadian metropolitan areas to investigate the correlation of Geographical variations with blood donor turnout, among other factors younger residents found to be influential (32) this fact is also stated in a cohort study conducted in Netherlands which establishes age groups 20-44 to be positively associated with return (25). In the study done in china subsequent return to blood donation were found to be higher among younger donors (26) in brazil also a study concluded age ≤ 24 years to be a predicting factor of return behavior among first time donors (20). In contrary to the presented literatures older age was found to positively associated factor with return of donors. Among Netherlands it was stated by a study the more likely donors to returned as older donors (21), donor who aged 50 and above were also founded to be the most likely returned in US (30).

Sex was the other factor found to influence donor return, several studies mention female to be more altruistic and for that matter become a first time donors whereas other studies point out men to be committed and for this reason more likely to become regular donors.

Literatures stated male sex to be highly associated with return of donors. Cohort studies conducted in Netherlands (25), US (30) and India (33) suggested male donors to more likely return to donate after an index donation. Retrospective studies like the one done in Brazil which analyze 363 donor data evidenced the average number of donation among older men respondents were higher, it also concluded in studies done in Iran and Germany that more men tends to be repeat donors (28,34). opposing this finding a study done in china found among other factors being female to be linked with subsequent return for blood donation (26).In Oslo, Norway a follow up study that aims to find out gender difference in donor return identified women aged less than 45 years to be not as much of a regular donor but those who are above 45 years of age to have the same return pattern as men of the same age group (19).

The final socio-demographic characteristics influencing return of blood donors was educational status. A study conducted in Canadian metropolitan areas put individual's higher education level as a positive factor influencing blood donor's turnout (32) but in contradictory in china people who have lower educational level were found to return more often as it was established by Guo et al (26) and in Iran one study concluded return for subsequent donation as not being correlated with educational status (28).

2.2.2 Psychological factors

A number of personal traits are suggested to be associated with the return of voluntary blood donors. Individual's altruistic behavior was reported to be one of the determinants in donor's regular donation practice by several researchers. In selected sub-Saharan countries one study showed that pro social motivation such as altruism and the desire to have a positive effect on the community was the most frequently noted reason to donate blood (35) similarly in Brazil, Italy and Spain altruism was found to be the main motivator in repeat blood donation(36-38) . As another psychological factor on the research done in Tanzania High intention was identified to increase the likelihood of repeat donation (29).Attitude was also additional factor influencing blood donor return but in turn it was affected by knowledge and experience. A follow up study in Ohio recognize favorable attitude to be associated with higher rate of attempted donations (39).First time donors who knows individual transfused (32, 40) or donated (41)were also found to be returned for subsequent donations. perception about being capable of donating blood

regularly was also found to impact donor return in sub-Saharan Africa (35). Donors tend to measure their perceived risk and benefit as they decide for continuation of donation and on this process groundless fears due to misperception were identified to influence donor decision process(38).

For donors as a whole previous return rate has an impact on continuous donation. In the study done in Netherlands those who had higher previous return rate seemed to return more often (21) in China it was also found odds of returning to donate increase in relation to previous donation frequency (26) a study conducted in Malaysia concluded donors who practice donation have a higher aspiration to do it again (42). For first time donor the 12 month after their primary donation is a critical period as it was identified by literatures to predict the behavior of their subsequent donation (43). In US frequency of first year donation was found to determine commitment of donors (44). A study done in Brazil also found of those who donated five or more times, 43.8% returned for the next donation at an interval of less than six months (18). This fact is also stated in a study conducted in Iran that the return rate first time donors to be directly correlated with the number of donations in the first year since their first donation period(28).

2.2.3 Experience on previous donation

Any conditions experienced by donors on their first donation practice are highly predictive of their comeback. Of this predicting conditions presence of adverse reaction, being medically ineligible to donate, anxiety and needle pain were identified to be the main ones.

Adverse reaction could be of different types but the most experienced are vasovagal reactions manifested by fainting, sweating, loss of consciousness for short period of time and fatigue. Other reactions are needle related reactions like needle pain, bruise, sore arm and repeated vein puncture. These reactions are found to be more prevalent among young, female and first time donors(18, 45-48). In Netherlands a conducted study showed the return rate of 82 % without any complication reduced to 55% and 61% due to vasovagal reactions and needle-related complication respectively. In the same country other study put 9% of first time donors who experienced adverse reaction never return to donate (25, 49). In the same way in US the 1.32

visit per year return rate reduced and become 0.87 visits per year because of donor reaction and there was 85% reduction in blood donor return rate among those experienced adverse reaction fatigue and sore arm (22, 23, 30). In southeast Ohio a study found needle pain adversely affecting donation satisfaction and afterward, donation intention(50).In Tanzania conducted study outlined Good experience in previous donations to increase odds of repeat donations (29).

2.2.4 Service related factors

The manner of service deliver seemed to affect donor's intention in revisit, several literatures including WHO survey on blood safety found poor donor care and discomfort related to donation as reason for low number of regular donors(1, 19, 51). Beside great donor care appreciation of first time blood donors was found to motivate them for subsequent donation(39, 52). Access to donation site were found to affect a return, in the study carried out in Tanzania nearness of donation site was identified as a factor for repeat donation (29). In china also donors who found the donation site in convenient place were four times more likely to donate repeatedly (26).

2.2.5 Knowledge about blood donation

For long knowledge about blood donation was claimed to have a greater impact on persons decision to donate blood but researchers have proven that even though individuals who have an acceptable level of knowledge do not practice blood donation to the expected level. The level of knowledge and proportionate blood donation in different studies could be presented as in Greek a study concluded individuals now a days have a better understanding of blood donation yet blood transfusion services suffer from shortage of blood repeatedly (53). In India a study shows donor's knowledge to be fair as 51.2% of the participants knew about interval of donation and 79.4% donors knew about the age boundary for the donation (54)

From African region a study conducted in Nigeria shows that among study participants of tertiary level students (61%) was claimed to have a good knowledge but only 3% donated voluntarily (55) in south east Botswana it is stated that 70.1% were willing to donate but only 9.6% participants reported that they have been regular donors (41) in Namibia 68%—72.7% of respondents never donate blood the study also identify the number of donors who always donate blood to be 3.2% to 10% (51). In Ethiopia several studies found good knowledge of blood

donation and favorable attitude in about 50 % of most study participants but lower donation practice. Proportion of donors with knowledge and those who actually practiced donation in different setup found to be 54 % and 24.94% in ASTU College A.A University (40) and 58.1% and 24.5 % in Samara University (15). other conducted studies in Ethiopia found the proportion of participants who donates blood to be 12% in Mekelle , 16.1 % in Debre Markos town, 10% among high school students in A.A; these study also present regular donors to be 1% of the students and among Madawalabu university students only 22.5% donated blood more than one time (16, 14,17,56).

Knowledge about the time interval between donation, donation requirements and the use of donated blood were found to be positively associated with repeated donation. In a cross sectional study done in Tanzania individuals who knew the time interval of donation are the most likely returned with shorter period between donations(29). In studies conducted in Ethiopia too donors who knows about the benefit of donated blood to mothers and the requirements tends to become regular donors (16, 40).

The studies evidenced different factors has an impact on the return of voluntary blood donors which in turn predict country's pool of regular donors for sufficient blood supply. The factors were also found to be diverse in different set up so instead of concluding other countries findings investigating determinants in Ethiopia will bring an evidence for poor regular donors in the country.

2.3 Conceptual framework

The conceptual framework is developed basing on different literatures. It consists of five independent variables which have a relation with the outcome variable (Figure 1).

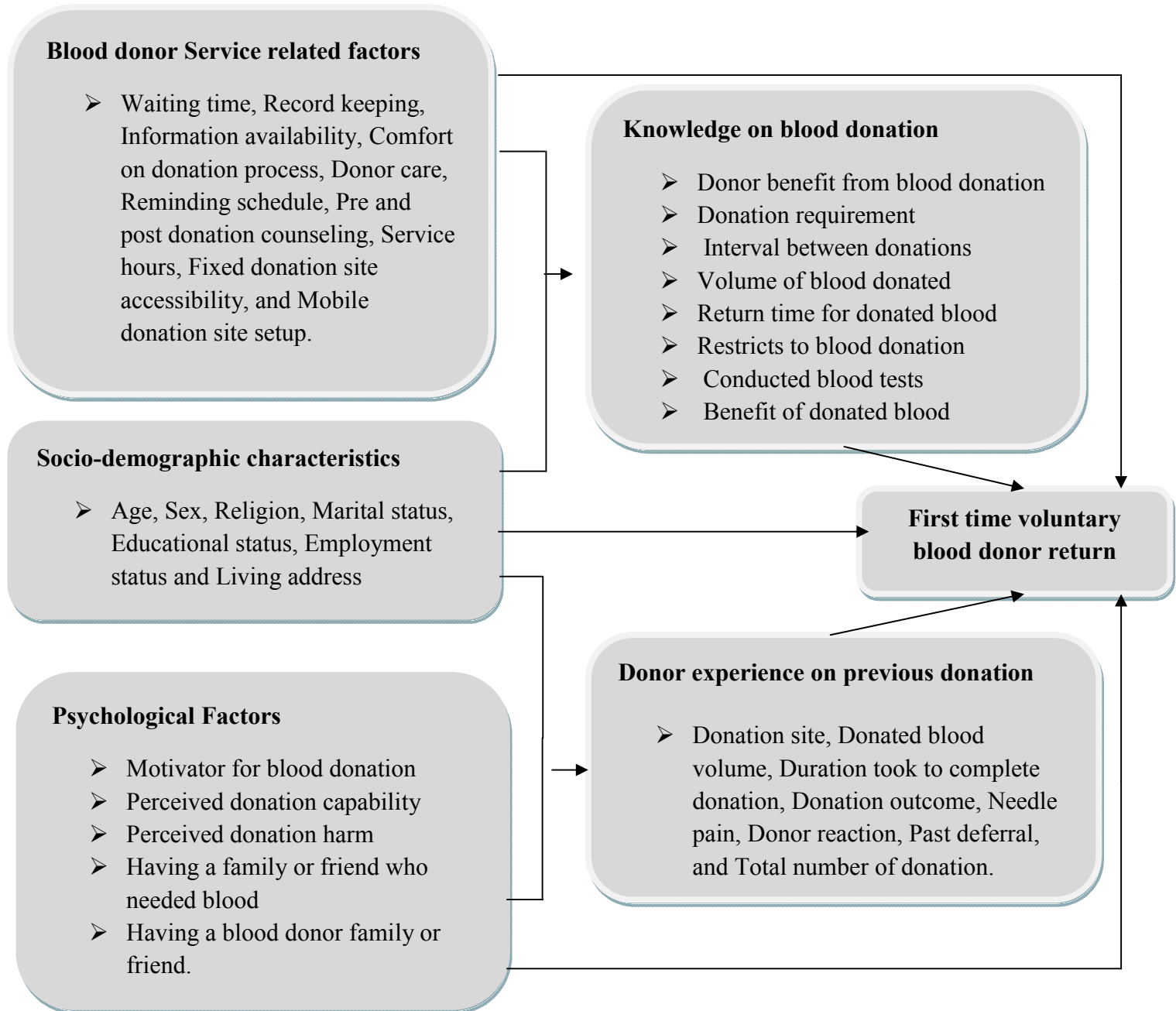


Figure 1- Conceptual framework of first time voluntary blood donor return determinants

3. OBJECTIVE OF THE STUDY

3.1 General objective

- To evaluate the return rate and return determinants among first time voluntary blood donors in Ethiopian national blood bank service from March 2017 –April 2017.

3.2 Specific objectives

- To determine the return rate of first time voluntary blood donors in ENBBS.
- To assess factors those are associated with the return of first time voluntary blood donors in ENBBS.

4. METHODS AND MATERIALS

4.1 Study area

The study was conducted in Ethiopian national blood bank service which is located in Addis Ababa, the capital city of Ethiopia. It is an autonomous body established with the aim of providing patients of Ethiopia with adequate, safe and effective blood products in an equitable and sustainable manner. The Ethiopian national blood bank has one fixed donation site and six mobile teams collecting blood in and around the city and in 2008 EFY it collected 37 % of supplied blood. The blood bank has five directorates namely donor service, laboratory and medical service, quality service, human resource and finance. It is staffed with 180 personnel of whom 118 are technical workforce and the rest are support staff.

4.2 Study design and period

Facility based unmatched case control study design was implemented to assess the determinants of first time voluntary blood donors return in Ethiopian national blood bank service from March –April 2017.

4.3 Population

Source population

The source population is all first time voluntary blood donors in Ethiopian national blood bank service.

Study population

The study population were first time voluntary blood donors who made their index donation in 2006 EFY at Ethiopian national blood bank.

- Cases were first time voluntary blood donors who returned for donation within two years since their index donation.
- Controls were first time voluntary blood donors who didn't return for donation within two years since their index donation.

4.4 Inclusion and exclusion criteria

Inclusion criteria

- First time voluntary blood donors who have a registered phone number in the blood bank database.

Exclusion criteria

- First time voluntary blood donors who screened positive for TTI's(HIV, HBV, HCV, and Syphilis) in their first donation.

4.5 Sample size determination

Sample size was calculated based on double population proportion formula for unmatched case control study using Epi-Info Statcalc 7. Knowledge about blood donation in the general population was taken as a main exposure variable from the study done in Debre markos, since it gave a maximum sample size (16). The following assumptions were made: 95% confidence level, 90% power, ratio of controls to cases 1:1 and 15 % non-response rate because of the communication media. With these assumptions the reasonable calculated sample size became 438 (219 cases and 219 controls).

4.6 Sampling procedure and techniques

The blood bank database of first time voluntary blood donors who made their index donation in 2006 EFY was used as a sampling frame. First time donors at this period are selected for the reason that the Ethiopian national blood bank started collecting blood only from voluntary blood donor in December 2006 EFY.

After differentiating donors who returned and who didn't, both cases (first time donors who returned) and controls (first time donors who didn't return) were selected using simple random sampling methods from the database (Figure 2).

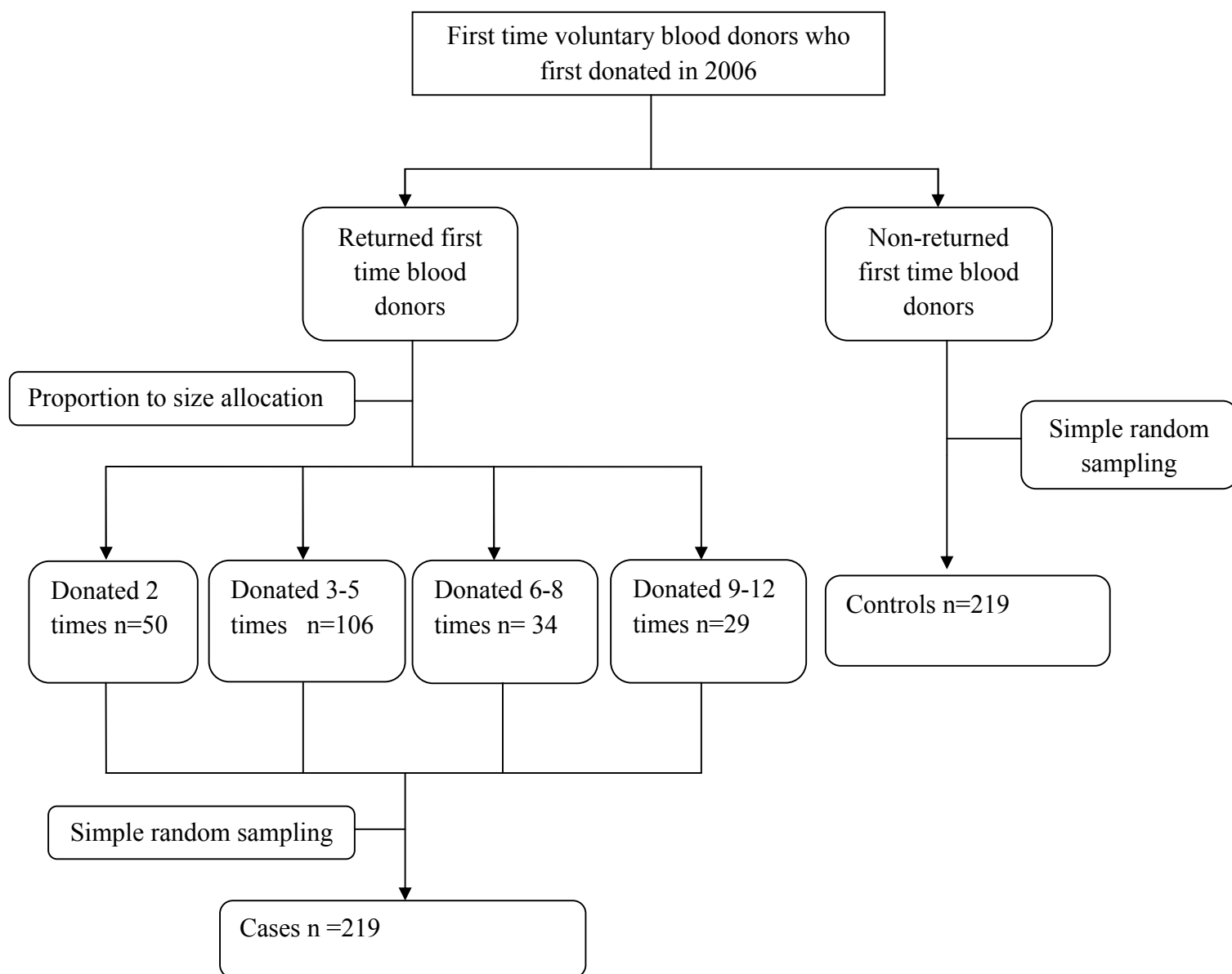


Figure2- Schematic presentation of sample selection, ENBBS 2017

4.7 Study variables

Independent variables:

- **Socio demographic characteristics:** Age, Sex, Religion, Marital status, Educational status, Employment status and Living address.
- **Knowledge on blood donation:** Donor benefit from blood donation, Donation requirement, Interval between donations, Volume of blood donated at a time, Duration took to replace donated blood volume, Situations that restricts blood donation, Conducted blood tests and Benefit of donated blood.
- **Psychological factors:** Motivator for an index donation, Perceived donation capability, Perceived donation harm, Having a family member or friend who needed blood and Having a blood donor family member or friend.
- **Experience on previous donation:** Donation site, Donated blood volume, Duration took to complete donation, Donation outcome, Needle pain, Donor reaction, Past deferral, and Total number of donation
- **Service delivery by ENBBS:** Waiting time, Record keeping, Receptionist courtesy, Information availability, Comfort on screening, Donor care, Reminding schedule, Pre and post donation counseling, Service hours, Fixed donation site accessibility, and Mobile donation site setup.

Dependent variable

- Return of first time voluntary blood donors for subsequent donation

4.8 Operational and term definition

Regular blood donor – A person who made at least six donations within two years and the last donation has been made within the recent 12 months.

Returned blood donor – A person who made a subsequent donation in 24 months following 3 months of mandatory deferral period from the date of an index donation

Voluntary non-remunerated blood donor: A person who donates blood of his/her own free will and receives no payment for it, either in the form of cash, or in kind which could be considered a substitute for money

Knowledge on blood donation:- knowledge is respondent's ability to respond to questions related to blood donation. Respondent's who score of below the mean was classified as having inadequate knowledge and those who score above or equal to the mean were considered as having adequate knowledgeable on blood donation.

4.9 Data collection tool

A structured interviewer administered questionnaire was used to collect information from study participants on factors influencing return for continuous donation. The instrument was adapted from previous published literatures (22-24, 29, 39, 44, 50)

The questionnaire was designed in English and translated to local Amharic language and then back to English by the third person to check for consistency. The tool involves five parts. Part one consists 8 questions about socio-demographic characteristics, part two involves 8 questions regarding knowledge on blood donation, part three involves 5 questions on psychological factors, part four involves 16 questions concerning donors previous donation experience and part 5 involves 14 question concerning donor service provision by ENBBS.

4.10 Data collection procedure

Return rate of first time blood donors

All donors' data who donated for the first time in 2006 EFY from Ethiopian national blood bank database was Extracted. Afterwards donor data was classified as first time voluntary blood donors, regular voluntary blood donors, replacement donors, repeat donors who weren't first time donors in 2006 EFY. From first time blood donors individuals who didn't have a registered phone number were excluded. Two data clerks used Each first time blood donor's phone number in the blood bank donor data management server and asses their pattern of return in two years so as to estimate the return rate.

Factors affecting the return of first time blood donors

To gather data on factors influencing the return of donors, telephonic interview was implemented. The interview was executed by three diploma nurses who were trained on the research objective, data collection tool and interview methods in addition quality of the collected data was checked by the principal investigator (PI) at the spot.

The interview was guided by prepared structured questionnaires, The blood bank wireless telephones were used to call study participants and on average the interview with one individual took 20minutes. Participants who weren't reached on the first phone call were called twice and replaced if not yet reached. The actual data collection took one month including weekends to reach donors who were busy on week days and preferred weekends for the interview.

4.11 Data quality management

The structured questionnaire was pretested in Debre Brihan blood bank on 20 donors (4.5% of the study sample). Accuracy of responses, questions clarity, appropriateness of the communication media (telephone) and the time it took was assessed and necessary adjustments were made. To assure whether or not the required person was responding while executing the telephonic interview some information about the donor that were already presented in the database were cross checked with the participant response. Training on procedure of data collection, ethical issues and as a whole on the purpose of the research was given for data collectors. In addition with a close follow up of the data collectors all responses were checked for comprehensiveness and consistency by the PI.

4.12 Data analysis procedure

After data collection, filled data was pre coded and entered in statistical software Epidata version 3.1and was exported to STATA version 14 for cleaning and analysis. Data was cleaned by sorting of continuous variables and frequency tabulation for categorical variables. Descriptive summary measures were used to describe levels of exposure in cases and controls.

Knowledge of participants on blood donation was assessed by pretested 8 questions and multiple answers were allowed. Every possible right answer were re coded "1" and if wrong was re coded "0" afterward knowledge score was conducted and summarized. By taking a mean score of 41, participants who scored above the mean were classified as to have adequate knowledge whereas those who scored less than mean as to have inadequate knowledge on blood donation.

Similarly service delivery by the blood bank was assessed with 14 questions and scales were re coded as "very good" if it was chosen to be excellent and very good, "good" as it is and "poor" if it was chosen to be poor and very poor afterwards cross tabulation was done to see the overall grade of the service delivery by the cases and controls.

A bivariete logistic regression was used to look for the presence of association between each independent variable and donor return. Variables with p-value of 0.25 and less were fitted to multivariate logistic regression model to control for cofounders and be able to indicate the strength and statistical significance of associations. For all of statistical tests in this study, the significant level was set to be at $p\text{-value} < 0.05$.

4.13 Ethical consideration

Ethical clearance was obtained from Ethical Review committee of School of Public Health, Addis Ababa University. After presenting the ethical clearance letter permission to conduct the research in Ethiopian national blood bank service was sought from the blood bank director and research committee. The believed to benefit donors by answering questions raised concerning donation. Each participant was informed about the nature, purpose and procedure of the research. Oral informed consent was taken from each participant for the interview and anonymity in excluding infected donors and confidentiality for delivered information was strictly maintained.

4.14 Dissemination of the result

The finding of the research will be presented as a partial fulfillment of the degree of masters in Addis Ababa university school of public health department of health system management and a copy of the study will be submitted to Addis Ababa university school of public health and the Ethiopian national blood bank service. Presenting the research report in scientific seminars and publication on peer reviewed journals will also be considered.

5. RESULTS

5.1 Socio-demographic characteristics of respondents

From the estimated sample size of 438, 414 individuals were interviewed making the response rate to be 94.5%, of these 207 were cases and 207 were controls. The mean $\pm$ standard deviation (SD) age of cases and controls were 30.7 ± 8.1 and 31 ± 8.6 years, respectively. Most of the participants 143 (69.1%) of cases and 137 (66.2%) of controls were male. Majority of the participants 150 (73.5%) of cases and 152 (74.5%) of controls were followers of Orthodox religion, next to these Protestant religion followers accounts 40 (19.6%) of cases and 39 (19.1%) of controls and then Muslims were 9 (4.4%) among cases and 13 (6.4%) among controls. Most of the participants 131 (63.3%) of cases and 118 (57%) of controls were not married. On educational status 13 (6.4%) of cases and 3 (1.5%) controls had no formal education while 23 (11.4%) of cases and 48 (24.9) of controls attended primary and secondary education and majority 166 (82.2%) of cases and 142 (73.6%) of controls attended technical and higher education. Equal number of participants 159 (77.8%) of cases and controls were employed while 16 (6.4%) of cases and 13 (6.4%) of controls were unemployed. There was no a significant difference in assessed socio- demographic characteristics between cases and controls as denoted by a p value of a chi-square test (Table1).

Table1 - Characteristics of study respondents whose first time blood donation is in 2006 EFY, ENBBS 2017(n=414)

Cases n (%)	Controls n(%)	p-value
Mean (SD)= 30.7 (8.1)	Mean (SD)= 31 (8.6)	0.78
Median= 29	Median= 28	
IQR= 13	IQR=11	
143 (69.1)	137 (66.2)	0.39
64 (30.9)	70 (33.8)	
150 (73.5)	152 (74.5)	5.7
5 (2.4)	0 (0.0)	
40 (19.6)	39 (19.1)	
9 (4.4)	13 (6.4)	
131 (63.3)	118 (57)	1.9
73 (35.3)	87 (42)	
13 (6.4)	3 (1.5)	16.7
23(11.4)	48 (24.9)	
166 (82.2)	142 (73.6)	
32 (15.5)	32 (15.7)	0.29
159 (77.8)	159 (77.9)	
16 (6.4)	13 (6.4)	

5.2 Respondents knowledge on blood donation

The knowledge of respondents was assessed using 8 questions which could also have a multiple answer. Conducting a knowledge score the mean $\pm$ standard deviation (SD) was found to be 41.5 ± 6.9 and taking this as a cutoff point 117 (56%) of cases and 105 (50.7%) of controls were found to have an adequate knowledge while 90 (43.5%) of cases and 102 (49.3%) of controls to have inadequate knowledge on blood donation.

Majority of both cases and controls had knowledge on requirements, benefits, restricting conditions of blood donation and the health conditions that require blood transfusion. Specific respondent's knowledge on blood donation is shown in Table 2

Table2- Knowledge on voluntary blood donation among first time voluntary blood donors in 2006 EFY, ENBBS 2017

Cases n (%)	Controls n (%)	Total n (%)
205 (99)	195 (94.2)	400(96.6)
18 (8.7)	11 (5.3)	29 (7)
20 (9.7)	10 (4.8)	30 (7.2)
3 (1.4)	0 (0.0)	3(0.7)
3 (1.5)	1 (0.5)	4 (1)
175 (84.5)	163 (78.7)	338 (81.6)
138 (66.7)	142 (68.6)	280 (67.6)
101 (48.8)	97 (46.9)	198 (47.8)
162 (78.3)	167 (80.7)	329 (79.5)
114 (55)	107(51.7)	221 (53.4)
0 (0)	4 (1.9)	4 (1)
172 (83)	154 (74.4)	326 (78.7)
14 (6.8)	9 (4.3)	23 (5.6)
10 (4.8)	14 (6.8)	24 (5.8)
0 (0)	2 (1)	2 (0.5)
10 (4.8)	23 (11.1)	33 (8)
15 (7.2)	31 (15)	46 (11.1)
68 (32.8)	51 (24.6)	119 (28.7)
42 (20.3)	13 (6.3)	55 (13.3)
13 (6.3)	24 (11.6)	37 (8.9)
4 (1.9)	5 (2.4)	9 (2.17)
65 (31.4)	83 (40.1)	148 (35.8)
86 (41.5)	70 (33.8)	156 (37.7)
17 (8.2)	9 (4.3)	26 (6.3)
18 (8.7)	28 (13.5)	46 (11.1)
85 (41)	99 (47.8)	184 (44.4)
150 (72.5)	154 (74.4)	304 (73.4)
59 (28.5)	54 (26.1)	113 (27.3)
64 (30.9)	54 (26.1)	118 (28.5)
168 (81.2)	140 (67.6)	308 (74.4)
105 (50.7)	95 (45.9)	200 (48.3)
100 (48.3)	76 (36.7)	176 (42.5)
133 (64.2)	128 (61.8)	261 (63)
201 (99)	193 (95)	394 (97)

	153 (75.4)	122 (60.1)	275 (67.7)
	108 (53.2)	83 (41.9)	195 (47.5)
	180 (88.7)	130 (64)	310 (76.3)
	146 (70.5)	145 (70)	291 (70.2)
	174 (84.1)	188 (90.8)	362 (87.4)
	59 (28.5)	64 (30.9)	123 (29.7)
	141 (68.1)	131 (63.3)	272 (65.7)
	186 (89.9)	186 (89.9)	372 (89.9)
	53 (25.6)	61 (29.3)	114 (27.5)
	67 (32.4)	70 (33.8)	137 (33)
	117 (56.5)	105 (50.7)	222 (53.6)
	90 (43.5)	102 (49.3)	192 (46.4)
	41.5 (SD ± 6.9)		

5.3 Respondent's psychological factors

Among the motivational factors that initiate a first time voluntary blood donation more than half proportion of cases 118 (57%) and 89 (43%) controls donated for moral satisfaction whereas more controls than cases with number of 35 (16.9%) and 27 (13%) respectively donated blood for the first time because a family or friend needed blood or for free health check up. Figure 3 shows different issues that trigger individuals to donate blood and as it can be seen lower number of donors were inspired by media appeal.

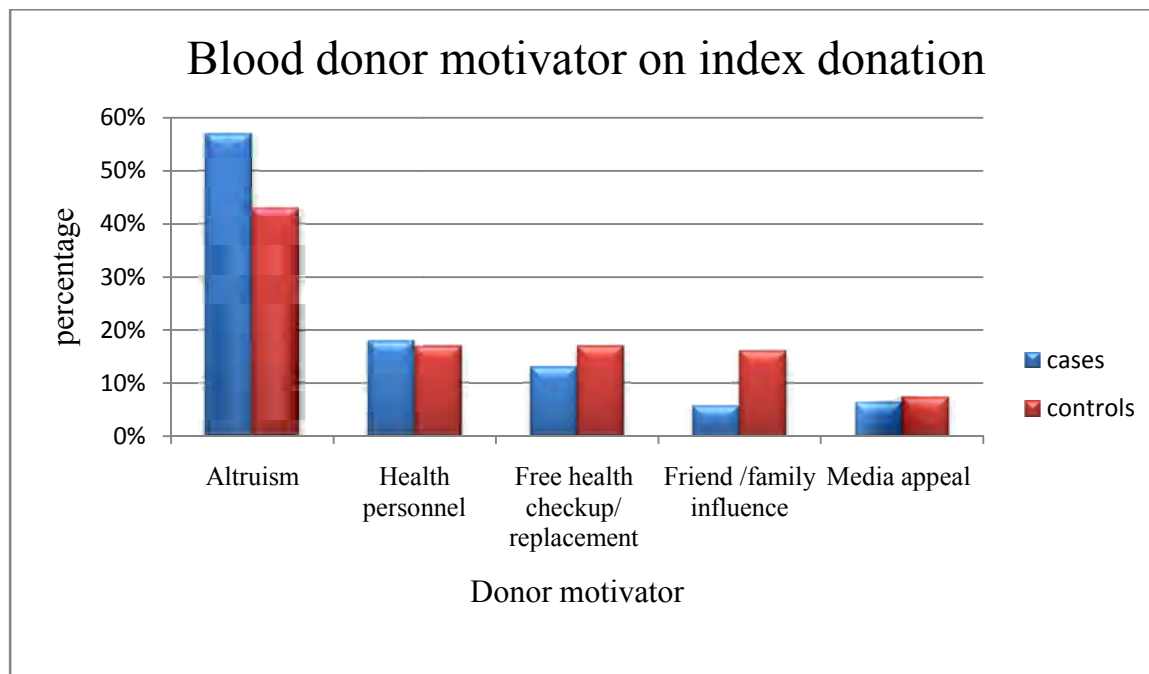


Figure3-Motivators for an index blood donation among first time blood donors in 2006 EFY Addis Ababa, 2017

Almost all cases, 201 (97%) perceived they are capable of donating blood regularly while 164 (79%) of controls thought so. More cases, 84 (40.6%) than controls, 72 (34.8%) had a family member or a friend who needed blood transfusion however more controls 187 (90%), than cases 177 (85%), have a blood donor family or friend.

5.4 Respondents previous donation experience

Among all participants, 86 (41%) of cases and 91 (43.9%) of controls previously donated blood at the fixed blood donation site while 121 (58%) of cases and 116 (56%) of controls donated at a mobile blood collection site. Of those who returned for subsequent donation 40 (19.3%) donated 450ml of blood on their last donation.

Though majority of both cases and controls didn't remember the time it took them to finish the donation 101 (48.8%) of cases and 96 (46.6%) of controls claimed it to be 1-15 min and more proportion of cases 200 (96.6%) than controls 177 (85%) reported their donation outcome as completed donation while 18 (8.7%) of controls didn't finished their last donation.

On scaling the pain of needle insertion moderate proportion of both cases 113 (54%) and controls 107 (51%) stated it as ordinary yet 14 (6.7 %) of cases and 20 (9.66%) of cases claimed to have experienced needle related reaction. From the reactions most frequently mentioned were vein fail by 9 (2.2%) of cases and 10 (2.4%) of controls, blood flow problem by 2 (0.5%) of cases and 6 (1.4%) of controls and repeated vein puncture at one time of donation by 2 (0.5%) cases and 3 (0.7%) of controls.

Concerning adverse reaction as a whole 11 (2.6%) of cases and 25 (6%) of controls have experienced reactions after donation, Figure 4 shows types of reactions experienced among those with occurrence of reaction as a whole.

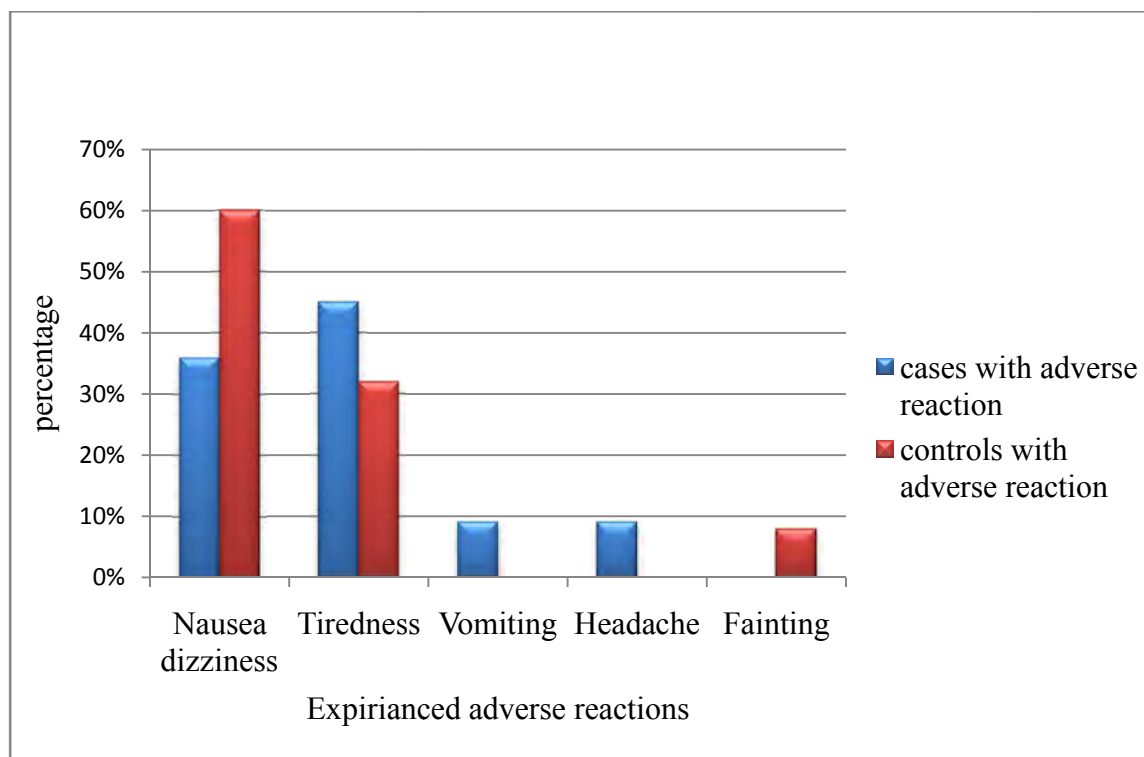


Figure4- Types of adverse reactions experienced among donors with reaction ENBBS, 2017

More proportion of controls 29 (7%) than cases 22 (5.3%) have been deferred from donation with several reasons, from this reasons repeatedly mentioned once was low hemoglobin amount by 11 (2.6%) of cases and 18 (4.3%) of controls and list mentioned was low weight by 2 (0.5%) of cases and 3 (0.7%) of controls. While 12 (60%) of deferred cases reconcile for donation 17 (60%) of controls didn't and the main reasons were reported to be deferral expectation and forgetting the appointment.

5.5 Feelings of study participants towards blood bank service provision

Overall the blood bank service provision ranked very good by 43 (20.8%) of cases and 42 (20.3%) of controls, good by 82 (39.6%) of cases and 78 (37.6%) of controls and poor by 82 (39.6%) of cases and 87 (42%) of controls. In chronological order the services reported to be poor were:- working hour, reminding donation schedule, accessibility of fixed donation site, availability of educational materials, ease of getting information and setup of mobile donation. Feelings of respondents for every assessed services delivered by the ENBBS is presented in figure5.

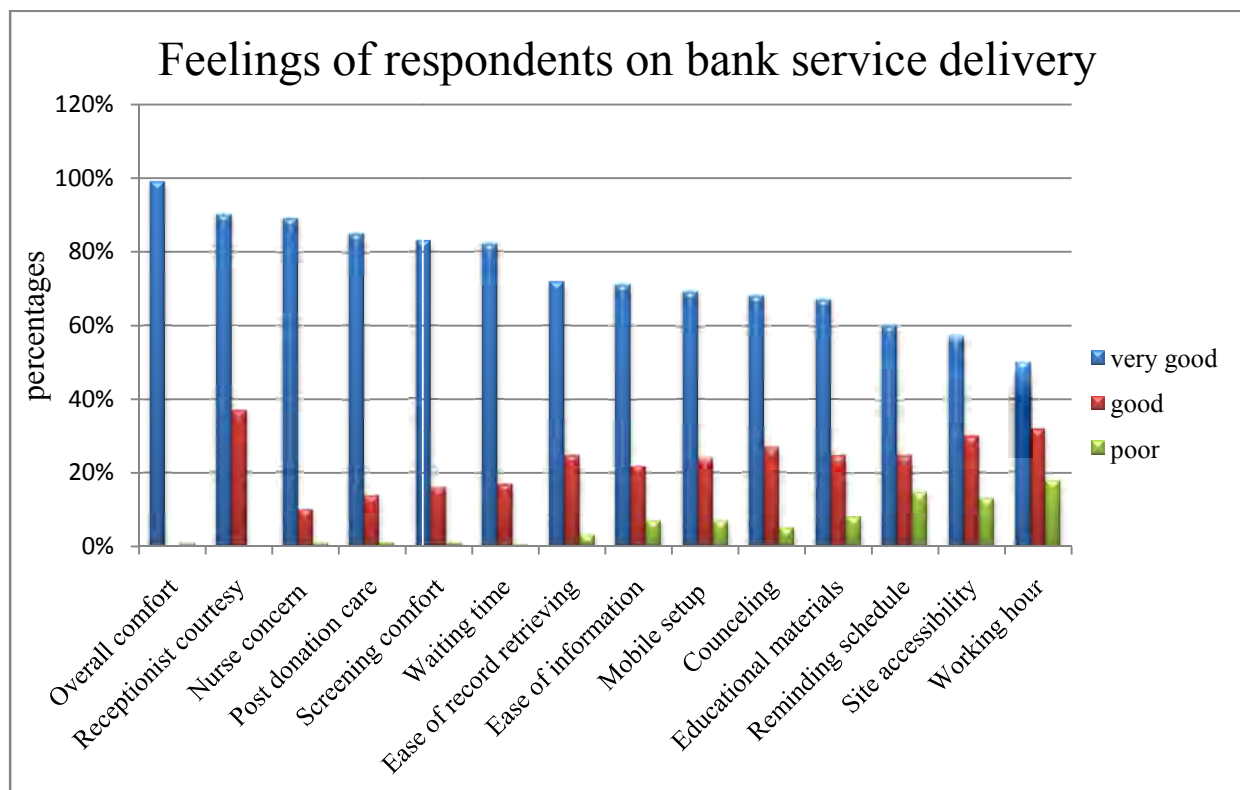


Figure5- Status of blood bank service delivery graded by first time voluntary blood donors in 2006 EFY, ENBBS 2017

5.6 First time voluntary blood donors return rate

Secondary data review was done on 43,651 donations collected in 2006 EFY to determine the return rate, donor data was extracted from Ethiopian national blood bank SQL server. The total donations in 2006 EFY were made by 8,222 replacement donors, 2,549 regular blood donors, 4,451 repeat donors who didn't made their index donation in 2006 EFY and 24,684 first time voluntary blood donors. From the first time voluntary blood donors in 2006 EFY 9307 donors were returned in two year period from their index donation making the return rate to be 37.7% in two years. The return rate was higher at fixed donation site (55.4%) than mobile donation site (32.4%). Donation record and first time voluntary blood donor return in 2006 EFY is shown in Table 3.

Table3- Records of blood donations made in 2006 EFY and return rate, ENBBS 2017

43,651	8,222(18.8)	2549 (5.8)	4451 (10.2)	24,684 (57)	9307 (37.7)
13,968 (32)	500 (6)	300 (12)	393 (9)	8,074 (33)	2,749 (29)
16,374(38)	3,465 (42)	1,200(47)	1,915 (43)	10,086(40)	3,882 (42)
9,305 (21)	2,897 (35)	768 (30)	1,513 (34)	4,672 (19)	1,912 (20)
3,081 (7)	1,074(13)	220 (9)	462 (10)	1,440 (6)	614 (7)
925 (2)	286 (3.4)	61(2)	168 (4)	412 (2)	150 (2)
28,546 (65)	6,865 (83)	2,104 (83)	3,305 (74)	14,462(59)	5,713 (61)
15,105 (35)	1,357 (17)	445 (17)	1,146 (26)	10,220(41)	3,594 (39)
18,488 (42)	8,222 (100)	2,458 (96)	2,132 (48)	5,632 (23)	3,124 (34)
25,163 (58)	0	91 (4)	2,319 (52)	19,052(77)	6,183(66)

Among the returned donors the pattern of return were seen by dividing the period of return in 5 categories and return rate was found to be lower in three month period from an index donation and higher in six month period (Figure 6).

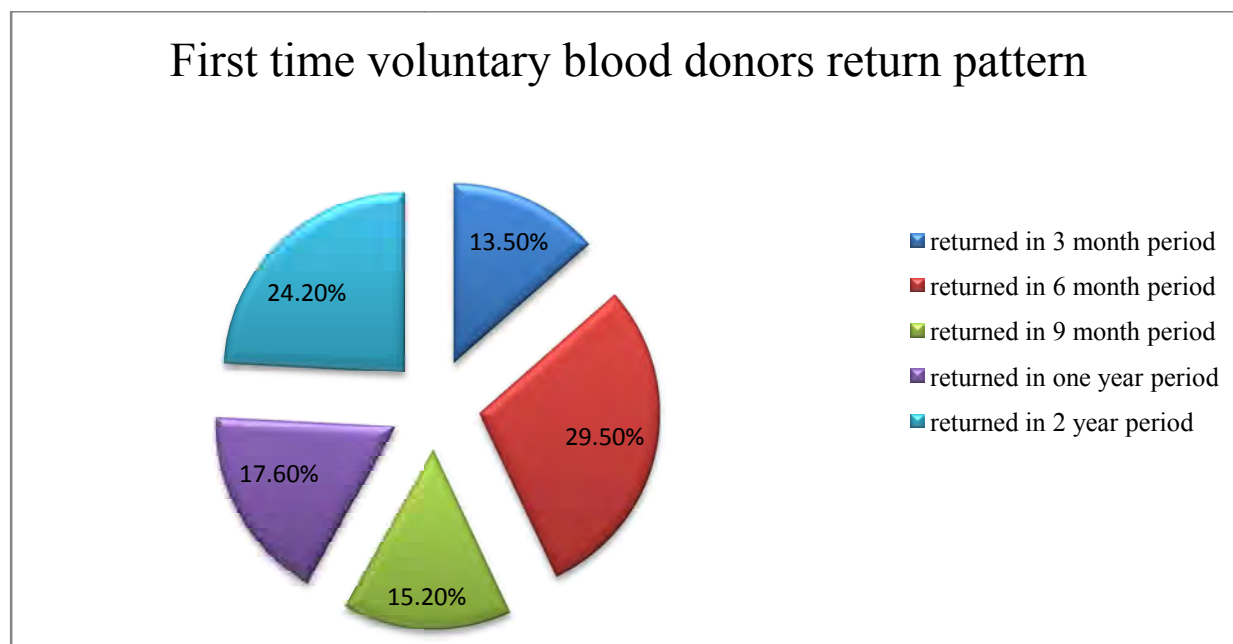


Figure6-Return pattern of first time blood donors in 2006 EFY from their index donation, ENBBS 2017

5.8 First time voluntary blood donors return determinants

Bivariate analysis was done to assess presence of association between 20 independent variable and donor return using the logistic regression model and all independent variables with p-value equal to and less than 0.25 in the bivariate analyses were included in the multivariate analysis model.

On multivariate analysis adjusting for confounding variables first time voluntary blood donor return were found more likely to be determined by altruistic behavior as first time donation motivator, positive perceived donation capability and awareness on volume of blood donated on previous donation.

As a first time motivator individuals who donated for moral satisfaction were 2 times more likely to be returned relative to those who donated for the reason of self interest (family member or a friend needed blood or for free health check up) (AOR=1.96, 95% CI: 1.02 - 3.64). As a highly determining factor individuals who perceive they are capable of donating blood regularly were 7 times more likely to be returned than those who don't think they are capable (AOR=7.3, 95% CI: 2.9 - 15.04). On donation experience compared to donors who doesn't know the volume they have donated individuals who donated 450ml blood previously were 4.8 times more likely to be returned (AOR=4.8, 95% CI: 2.18 - 8.98) whereas those who donated 350ml of blood had an odds of 2.9 of being returned (Table 4).

Table 4 Multivariate Analysis- Determinants of donor return among first time blood donors in 2006 EFY, ENBBS 2017

	Cases n(%)	Controls n(%)		
	117 (56.5)	105 (50.7)	1.29 (0.88 - 1.88)	0.93 (0.58 - 1.48)
	90 (43.5)	102 (49.3)	1.0	
	118 (57)	89 (43)	1.7 (0.96 - 3.05)	1.96 (1.02 - 3.64)*
	37 (17.9)	35 (16.9)	1.3 (0.69 - 2.72)	1.4 (0.67 - 3.03)
	12 (5.8)	33 (15.9)	0.4 (0.20 - 1.08)	0.6 (0.24 - 1.44)
	13 (6.3)	15 (7.2)	1.2 (0.46 - 2.76)	1.1 (0.38 - 3.05)
Free health checkup/ replacement donation	27 (13)	35 (16.9)	1.0	
Perceived donation capability				
	201 (97.1)	164 (79.2)	7.8 (3.25 - 15.56)	7.3 (2.9 - 15.04)**
	6 (2.9)	38 (18.4)	1.0	
Have blood donor family or friend				
	187 (90.3)	177 (85.5)	1.5 (0.79 - 2.82)	1.5 (0.77 - 2.99)
	19 (9.2)	27 (13)	1.0	
	22 (10.6)	23 (11.1)	1.4 (0.75 - 2.73)	1.9 (0.90 - 4.02)
	54 (26.1)	32 (15.5)	2.5 (1.51 - 4.19)	2.9 (1.61 - 5.36)*
	40 (19.3)	15 (7.2)	3.9 (2.09 - 7.58)	4.8 (2.18 - 8.98)*
	91 (43.9)	136 (65.7)	1.0	
	101 (48.8)	96 (46.6)	1.7 (0.67 - 4.36)	1.7 (0.62 - 4.75)
	8 (3.9)	13 (6.3)	1.0	
	200 (96.6)	177 (85.5)	2.9 (1.18 - 7.16)	1.99 (0.70 - 5.60)
	7 (3.4)	18 (8.7)	1.0	

	198 (95.6)	185 (89.4)	2.6 (1.18 - 5.81)	1.7 (0.68 - 4.36)
	9 (4.3)	22 (10.6)	1.0	
	186 (89.9)	178 (85.9)	1.4 (0.79 - 2.62)	1.4 (0.7 - 2.84)
	21 (10.1)	29 (14)	1.0	

*p-value < 0.05, **p-value < 0.01

6. DISCUSSION

The present study has found the return rate among first time blood donors for subsequent donation to be 37.7 % per two years, Looking at other developing countries findings in Iran a study conducted on 1,500 blood donors found the return rate to be 51.7 % during 3 years after the first donation(28). Even though both studies used same methodology (retrospective record review) to determine the return rate the findings are different this might be attributed for the fact that the later was done for three year period giving the chance to increase in return. In brazil though 53% of donors were returned for donation in two year period in another study there 28.1 % of first time donors had donated again over two year period(20, 24).However in china less number of donors returned for donation with a return rate of 14% in 9 months period from an index donation(26), The difference in findings between this thesis and the current study could be because of the fact that in china the mandatory donation time gap is within four or six month depending on the donated volume whereas in Ethiopia it is three month for both male and female.

On the other hand the present study finding of return rate is much more lower than developed country study findings, in Nederland a cohort study conducted on 28,786 first time blood donors found a return rate within a preselected time interval of 9 month to be 82% without adverse reaction(25), in one year period similarly in Germany the probability of return was found to be 33 %(31). In US Schreiber et al founded almost similar numbers of 32% of return rate among first time donors in one year period (43)another cross-sectional follow-up study for five years in US founded a successful return rate of 49.1%(57).

This higher return rate with in a shorter period of time compared to the present study might be because of the development of voluntarism culture and organized blood donation service on the mentioned countries. The low return rate in the present study could be as it was raised in qualitative discussion the blood bank doesn't have a scheduled mobile session at blood collection sites in addition there is only one fixed donation site in Addis Ababa and this decreases the return of donors without their intention, Other reason could be as it will be discussed later more than awareness of the issue individuals tend to continue donation out of altruism and motivational speaks in which the blood bank marketing role is inefficient to enlighten the issues

and make donors to be returned for a subsequent donation. In addition as our respondents mentioned the schedule reminding service to be of low standard compare to other services might not help the donor to come back for subsequent donation on their schedule and this suggests the retention strategy of Ethiopian national blood bank need to be looked at.

As a motivational factor for first time donation altruistic behavior was found to be associated with donor return this finding is in line with the study done in SSA which was done by extracting data from different literatures in the countries to look for motivator and barriers in donating blood. The study founded Pro-social motivation, such as altruism and the desire to have a positive effect on the community was the most frequently noted reason to donate blood (35). similarly in Brazil, Goncalez et al have found altruism to be the main motivator for blood donation (37) also in Italy a review of literature on published studies has found altruistic behavior to determine blood donation in female(36) likewise in Spain in the case of first time donors, the most important reason was found to be the desire to help a relative or friend, whereas in the case of regular donors, altruism was mentioned to be the main reason(38). In contradiction with the finding of the present study in Tanzania a weak association was found between altruistic score and repeat donation (29) this difference might be for the fact that the cross sectional study used an altruistic behavior score item that are reflected in day to day life and this may not reflect the blood donation activity. This finding suggest that including the encouragement of donors altruistic behavior in donor retention strategy could result in a greater achievement of increasing regular blood donor.

One of the most significant finding of the study is that donors who think that they are capable of donating blood as to be more likely returned. In sub-Saharan countries extracted study showed misconceptions towards blood donation, in addition to perceived negative health effects caused by donation to be the two most frequently mentioned reasons that deter individuals from donating blood(35). Moderately similar to this in Netherlands one of the main barrier to return for donation was found as to be preference to postpone donation due to general physical problems, despite being eligible to donate(21). In Spain as a study tries to formulate a model for blood donors it putted Groundless fears due to misperceptions about what can happen to them if they donate as an influential factor in donor decision process of donating blood(38).Although this finding could be much more explained after comparing the discrepancy between actual and

perceived donation capability it could be because individuals don't clearly know the selection criteria's and the donation process as there is a screening process for legibility.

From donation experience the present study discovered that donors who donated 450ml were more likely to be returned for subsequent donation. As of this finding in china a study found that larger volume donors were 1.4 times more likely to return compare to low volume donors (26). This finding is might be because of the fact that for the preparation of blood component the 450 ml blood is divided in to three (fresh frozen plasma, concentrated red blood cell and platelet) so instead of one patient the donated blood will be distributed to three. As frequency distribution of knowledge on blood donation shows respondents who donated 450ml had an adequate knowledge and this includes being familiar with benefit of donated blood. Therefore for donors knowing the donated blood saved three lives could result in a more positive attitude and increase motivation for a successive donation.

In the present study even if it was not found to be a predictor for not returning of first time blood donors Adverse reaction was found to be 7.5 % (excluding needle related reaction) among the whole respondents. This finding is higher than other studies, in developing countries as Nigeria, Pakistan, Brazil which found adverse reaction to be in a range of (1.2%- 2.5%) (46, 48, 47). The result is also higher than developed countries findings where in US, Netherland and Germany adverse reaction was found to be 4.2% and 3.9% and 6.3%respectively(23, 25, 45). The higher finding in the present study might be because of the different study design used. In referred researches prospective design were implemented and adverse reaction were observed after donation whereas the present study took donors responses. However in ENBBS giving concern for the moderately higher presence of adverse reaction could help in the achievement of WHO strategy 20 in making blood donation a pleasant and safest experience so as to be able to distribute a safe and adequate blood.

7. STRENGTH AND LIMITATIONS OF THE STUDY

Though as to our knowledge this research is the first done in Ethiopia in determining first time voluntary blood donor return rate and determinants, the results have to be interpreted within the context of potential limitations. First the study has looked return determinants on donors who had donated blood two years back and a recall bias might be occurred but since for an event a two years memory could be used we believed we found precise determinants. Second blood donors who didn't have a registered mobile phone number in blood bank data base were excluded and this might result in selection bias.

8. CONCLUSIONS

The study finding has showed that first time voluntary blood donors return rate to be low. Return of first time voluntary blood donors for successive donation was found more likely to be determined by positive perceived donation capability. Motivational factor for an index donation to be for moral satisfaction was also found to be positive determinants in donation continuation from donor's psychological factors. Being aware of previously donated blood volume was also found to positively impact donor's return.

9. RECOMMENDATIONS

Program and policy makers

- As blood donation needs a multi sector collaboration for its successful achievement educating the community starting from lower graders about regular blood donation might help in sensitizing the coming generation to make regular blood donation a culture and social responsibility

Ethiopian national blood bank service

- In order to increase the return rate besides working on specific determinants having a timely scheduled mobile drive at institution and also increasing the number of fixed donation sites could make the service convenient.
- Working on promotional and marketing service of the blood bank could sensitize the community's altruism for a regular blood donation.
- Making the promotion done in Medias to be reachable for individuals with a well watched media or other categories of media such as social Medias and to show what an individual's blood has done could enhance donor return.
- Working on donor awareness about donation requirements and screening procedure in donor selection could avoid feeling of perceived incapability.

For researchers

- Conducting the present study prospectively could present even more an accurate finding.
- For further research could be done on the difference between perceived and actual donation capability as it was a very predictive factor on this research.
- Investigating the motivational factors of donors with different socio-demographic characteristics could also help the blood bank to focus the retaining strategy.

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11. ANNEXES

ANNEX I Information sheet and consent form

Greeting:

Hello, my name is _____. I am a data collector for the study to be conducted on the factors influencing the return of first time voluntary blood donors using telephonic interview. The aim of this study is to strengthen the national effort to provide safe and adequate blood.

I would like to ask you a few questions about factors influencing the return of first time voluntary blood donors. To this end, your involvement in the study has great importance to the output of this research. You are selected randomly to be interviewed for a maximum of 20 minutes and it will introduce no risk to the participants. Your cooperation and willingness for giving responses is highly sought for the success of this study. Your name will not be written in this form so that the information collected is only used for research purpose. All information that you will give be kept strictly confidential. Your participation is voluntary and you are not obliged to answer any question you do not want to answer and can withdraw anytime. If you have any question regard to this study, you can ask immediately the interviewer or the investigator by using the contact address here under.

Do I have your permission to continue?

If verbal consent granted, continue interviewing

If not, thank and stop the interview.

Name of the interviewer _____ signature _____ date _____

Name of the supervisor _____ signature _____ date _____

Address of Principal investigator

Tell; 0910026491 Email dagisha.f@gmail.com

ANNEX II Questionnaire form; English version

Questions related to factors influencing the return of first time voluntary blood donors

Questionnaire code _____ Date _____

Instruction; Chose the appropriate answer for the following questions

Part 1 socio-demographic characteristics			
No	Socio demographic characters	Coding categories	Skip
101	Age in complete years		
102	Sex	Male -----1 Female -----2	
103	Religion?	Orthodox -----1 Catholic -----2 Protestant ----- 3 Muslim ----- 4 Other (specify) ----- 5	
104	Marital status	Single-----1 Married.-----2 Divorced/separated.-----3 Widowed.-----4 Cohabiting-----5	
105	Have you ever attended school?	yes -----1 no -----2	→ If no skip to 107
106	What is the highest level of school you attended?	Primary -----1 Secondary -----2 Technical/vocational -----3 Diploma -----4 Degree -----5 higher -----6	
107	What is your Current employment status? <i>Circle only one main answer</i>	Student-----1 Self employed-----2 Formal employed-----3 Casual laborer-----4 Unemployed-----5	

		other specify -----6	
108	Where do you live now?	Addis Ababa -----1 Outside of Addis Ababa -----2	
Part 2 Questions related to knowledge on regular blood donation			
No	Questions and filters	Coding categories	Skip
201	Does regular blood donation have benefits for blood donors?	Yes-----1 No -----2	If no skip to 203
202	If your answer to question number 201 is "yes" in what way could a volunteer be benefited from donating blood?	pleasure in saving life-----1 free health checkup -----2 reduce risk of heart disease-----3 reduce risk of cancer-----4 burn calories-----5 others specify-----6	
203	Does donating blood regularly harm blood donors?	Yes-----1 No -----2	If no skip to 205
204	If yes what possible harm can an individual be exposed to in donating blood regularly?	Anemia -----1 Transmission of infection-----2 Weight loss-----3 Convulsion-----4 Irreversibility of donated blood----- 5 Others specify-----5	
205	What are the necessary requirements for an individual to donate blood <i>Multiple responses are possible and circle all responses that apply</i>	Being voluntary -----1 Weight ≥ 45 kg -----2 Age ≥ 18 years -----3 Being in a healthy status-----4 Adequate Hg status-----5 Others specify-----6	
206	What is the mandatory minimum time gap between two donations ?	Monthly -----1 Every 3 month-----2 Every 4 month Every 6 month-----3 Yearly -----4 I don't know -----5	
207	What volume of blood can an individual donate at a time? <i>Multiple responses are possible and circle all responses that apply</i>	250 ml -----1 350 ml-----2 450ml-----3 500ml-----4 1000ml-----5 I don't know -----6	

208	When an individual donates blood, with in what time does the volume of blood return to what it was before?	24–48 hours -----1 One week-----2 Three months-----3 It will not be returned-----4 I don't know-----5	
209	What conditions can restrict an individual from donating blood? <i>Multiple responses are possible and circle all responses that apply</i>	Chronic illnesses-----1 Risky life style-----2 Fatigue -----3 Pregnancy/lactation-----4 Medications -----5 High/low blood pressure -----6 Low Hg level -----7 Others specify -----8	
210	Do blood banks screen collected blood before distribution?	Yes-----1 No-----2 →	If no skip to 212
211	If yes for what possible diseases do the blood be screened for? <i>Multiple responses are possible and circle all responses that apply</i>	HIV/ AIDS-----1 Hepatitis -----2 Syphilis-----3 Blood type -----4 Others specify-----5 I don't know -----6	
212	What are the health conditions that require blood transfusion? <i>Multiple responses are possible and circle all responses that apply</i>	Anemia-----1 Trauma -----2 Chronic illnesses-----3 Surgical procedures-----4 Pregnancy related problems---5 Burn -----6 Infants -----7 Others specify-----8	

Part 3 Psychological factors			
No	Questions and filters	Coding categories	Skip
301	What motivates you to donate blood for the first time?	Family/friend needed transfusion---1 Moral satisfaction, altruism-----2 Recruited by health personnel-----3 For free health checkup-----4 Motivated by friend /family donor-5 Media appeal -----6	
302	What is your blood type and RH?		
303	Do you think you are capable of donating blood regularly?	Yes-----1 No-----2	

304	Total number of donation?		
305	Do you know any family member or close friend who ever needed blood transfusion?	Yes-----1 No-----2	
306	Do you know any family member or close friend who donates blood?	Yes -----1 No -----2	

Part 4 questions on Experience of previous donation			
No	Questions and filters	Coding categories	Skip
401	Site of your last donation?	Fixed donation site-----1 Mobile donation site-----2	
402	What volume of blood did you donate on your last donation?	250ml -----1 350ml -----2 450ml -----3 I don't know -----4	
403	How many minutes have your last blood donation took?	1-5 minutes-----1 6-10 minutes-----2 11-15 minutes-----3 Above-----4 I don't remember -----5	
404	What was the outcome of your last donation ?	Completed donation -----1 Incomplete donation -----2	
405	Please Scale the pain of needle insertion?	Very painful -----1 Painful-----2 ordinary -----3 not painful at all -----4	
406	Have you ever experienced any Needle related adverse reaction?	Yes -----1 No -----2	If no skip to 408
407	If yes please indicate which type it was? <i>Multiple responses are possible and circle all responses that apply</i>	Hematoma -----1 Painful arm -----2 Failed vein puncture -----3 Repeated vein puncture-----4 Blood Flow problem -----5 Others specify -----6	
408	Have you ever experienced any adverse reaction in blood donation?	Yes -----1 No -----2	If no skip to 410

409	What type of adverse reaction did you experience? <i>Multiple responses are possible and circle all responses that apply</i>	Nausea/dizziness-----1 Fainting -----2 Tiredness -----3 Vomiting -----4 Sweating/ headache-----5 Loss of consciousness for shorter duration -----6 Loss of consciousness for longer duration -----7 Pallor -----8 Hyper ventilation -----9 Convulsion -----10 Rigidity -----11 Cardiac -----12 Falls/ accidents -----13 Others specify -----14	
410	Have you ever been deferred from donation on screening?	Yes -----1 No -----2	If no skip to 415 →
411	If yes please indicate to which reasons you were deferred? reconcile	Low haemoglobin-----1 Medical/surgical conditions--2 High-risk behaviour-----3 Menstruation-----4 Pregnancy-----5 Breast feeding-----6 Low weight-----7 Others specify-----8	
412	For how long was the donation postponed?	Temporarily -----1 Permanently -----2	If permanent skip to 415 →
413	If temporary did you come for subsequent donation after the restricted time?	Yes -----1 No -----2	If yes skip to 415 →
414	If no what was your reason?	Deferral expectation -----1 Fear -----2 Forgetting the appointment---3 Others specify -----4	
415	How would you express your last donation experience?	Good -----1 Bad -----2 Other specify -----3	

Part 5 Service related factors							
Please rate the following							
		excellent	Very good	good	poor	very poor	Does not apply
501	Waiting time in the reception area?	5	4	3	2	1	N/A
502	Ease of retrieving your previous donation record?	5	4	3	2	1	N/A
503	The friendliness and courtesy of the receptionist?	5	4	3	2	1	N/A
504	Ease of getting information when you require?	5	4	3	2	1	N/A
505	Availability of educational materials	5	4	3	2	1	N/A
506	Your comfort with the screening procedure?	5	4	3	2	1	N/A
507	The caring concern of the nurses who took your blood?	5	4	3	2	1	N/A
508	Provided post donation care?	5	4	3	2	1	N/A
509	Keeping you informed on the next donation schedule?	5	4	3	2	1	N/A
510	Provision of pre and post donation counseling?	5	4	3	2	1	N/A
511	Convenience of blood bank working hour for donation ?	5	4	3	2	1	N/A
512	Ease of access to the fixed donation site?	5	4	3	2	1	N/A
513	Setup of mobile blood donation site	5	4	3	2	1	N/A
514	Overall comfort?	5	4	3	2	1	N/A

ANNEX III Information sheet and consent form; Amharic version

የመረጃ መስጫና የፈቃድ መጠየቂያ ቅጽ

ጤና ይስጥልኝ

እኔ _____ ስሆን የመጀመሪያ ጊዜ የበጎ ፈቃድ ደም ለጋሾች መመለስ ላይ ተፅእኖ ያላቸው ሁኔታዎች ለማጥናት በስልክ የተዘጋጀ መጠይቅን መሰረት በማድረግ መርጃ ለመሰብሰብ የተወከልኩ ነኝ። የዚህ ጥናት አላማ የኢትዮጵያ ብሄራዊ ደም ባንክ አገልግሎት በቂና ደህንነቱን የጠበቀ ደም ለታካሚዎች የማስራጨት ጥረቱን ማጠናከር ነው።

የመጀመሪያ ጊዜ ደም ለጋሾች መመለስ ላይ ተፅእኖ ያላቸውን ምክንያቶችን በተመለከተ ጥቂት ጥያቄዎችን ልጠይቅ እወዳለሁ። የእርሶ በዚህ መሳተፍ ለጥናቱ ውጤት ታላቅ ጠቀሜታ አለው። በጥናቱ መሳተፍ በዘፈቀደ የተመረጡ ሲሆኑ ጥናቱ ምንም አይነት ችግር ወይም ጉዳት በተሳታፊዎች ላይ አያደርስም መጠይቁም ቢበዛ 20 ደቂቃ ብቻ ይወስዳል ። ለጥናቱ መሳካት ከእርሶ ጥያቄዎችን ለመመለስ መልካም ፈቃድና ትብብር ይጠበቃል። ከእርሶ የሚገኘውን መረጃ ለጥናቱ አላማ ብቻ ለመጠቀም ስምዎ በመጠየቁ ላይ አይፃፍም። ከእርስዎም የምናገኘው ማንኛውም አይነት መረጃ ምስጢራዊነቱ የተጠበቀ እንደሚሆን ላረጋግጥልዎ እወዳለሁ። የእርሶ በጥናቱ መሳተፍ በፍቃደኝነት ላይ ብቻ የተመሰረተ መሆኑን ተገንዝበው ያልፈለጉትን ጥያቄ አለመመለስ ወይም ከጥናቱ በፈለጉት ጊዜ ማቋረጥ ይችላሉ ሆኖም ከእርሶ የምናገኘው መረጃ አስፈላጊ ስለሆነ ጥናቱ ውስጥ እንደሚሳተፉ ተስፋ እናደርጋለን። መጠየቅ ለሚፈልጉት ማንኛውም አይነት ጥያቄ መጠይቅ አቅራቢውን መጠየቅ ይችላሉ አሊያም ከታች በተቀመጠው አድራሻ ጥናት አድራጊዎን መጠየቅ ይችላሉ ።

አሁን ቃለ መጠየቁን ለመጀመር ፍቃድዎን አረጋግጥሁ?

አዎ ካሉ መጠይቁን ይቀጥሉ አይሆንም ካሉ ደግሞ ያመስግኑና መጠይቁን ያቁሙ

ቃለ መጠይቁን የሚያደርገው ሰው ስም _____ ፊርማ-----ቀን-----

የተቆጣጣሪው ስም _____ ፊርማ -----ቀን-----

አድራሻ ስልክ 0910026491 ኢሜይል dagisha.f@gmail.com

ANNEX IV Questionnaire form; Amharic version

የመጀመሪያ ጊዜ የበጎ ፈቃደኛ ደም ለጋሾች መመለስ ላይ ተዕዕኖ ያላቸውን ምክኒያቶችን ለማጥናት የተዘጋጀ ቃለ መጠይቅ

የመጠይቅ መለያ ቁጥር _____ መጠይቁ የተሰጠበት ቀን _____

መመሪያ :- ለቀጣዮቹ ጥያቄዎች ተገቢውን ምላሽ ይምረጡ

ክፍል 1: ማህበራዊና ስነህዝባዊ ሁኔታን በተመለከተ

ተ.ቁ	ማህበራዊና ስነህዝባዊ ባህሪ	ምርጫ	እለፍ/ፊ
101	እድሜ በሙሉ ቁጥር		
102	ፆታ	ሀ. ወንድ-----1 ለ. ሴት-----2	
103	ሃይማኖት	ሀ. ኦርቶዶክስ ክርስቲያን-----1 ለ. ካቶሊክ -----2 ሐ. ፕሮቴስታንት -----3 መ. ሙስሊም -----4 ሠ. ሌላ ካለ ይግለፁ -----5	
104	የጋብቻ ሁኔታ	ሀ. ያላገባ-----1 ለ. ያገባ-----2 ሐ. የፈታ/የተለያየ-----3 መ. ባለቤቱ የሞተበት -----4 ሠ. በጋራ እየኖሩ ያሉ-----5	
105	ትምህርት ተምረው ያውቃሉ ?	ሀ. አዎ -----1 ለ. አይደለም-----2	መልሶ አይደለም ከሆነ ወደ 107 ይለፉ →
106	የደረሱበት ክፍተኛ የትምህርት ደረጃ ?	ሀ. የመጀመሪያ ደረጃ ትምህርት-----1 ለ. ሁለተኛ ደረጃ ትምህርት-----2 ሐ. ቴክኒክና ሙያ ስልጠና-----3 መ. ዲፕሎማ -----4 ሠ. ዲግሪ -----5 ረ. ከተጠቀሱት በላይ -----6	
107	አሁን ያሉበት የስራ ሁኔታ ምንድን ነው? አንድ ዋና መልስዎን ብቻ ይስጡ	ሀ. ተማሪ-----1 ለ. የግል ሰራተኛ -----2 ሐ. ቋሚ ቅጥረኛ -----3 መ. ቋሚ ያልሆነ ሰራተኛ -----4 ሠ. ስራ ፈት -----5 ረ. ሌላ ካለ ይግለፁ -----6	
108	አሁን የሚገኙበት የመኖሪያ አድራሻዎ የት ነው?	ሀ. አዲስ አበባ-----1 ለ. ከአዲስ አበባ ውጪ -----2	

ክፍል 2: ቋሚ የደም ልገሳ እውቀትን በተመለከተ

ተ.ቁ	ጥያቄ	ምርጫ	እለፍ/ፊ
201	ቋሚ ደም ልገሳ ለበጎ ፈቃደኞች ጠቀሜታ አለው?	ሀ. አዎ -----1 ለ. አይደለም -----2	መልስዎ አይደለም ከሆነ ወደ ጥያቄ 203 ይለፉ →
202	ለጥያቄ ቁጥር 201 መልስዎ አዎ ከሆነ በጎ ፈቃደኞች በምን መልኩ ከደም ልገሳ ሊጠቀሙ ይችላሉ ?	ሀ. የሰውን ህይወት በማትረፍ መደሰት-----1 ለ. ነፃ የጤና ምርመራ -----2 ሐ. ለልብ በሽታዎች ተጋላጭነትን መቀነስ-----3 መ. ለካንሰር ተጋላጭነትን መቀነስ-----4 ሠ. ክብደትን መቀነስ-----5 ረ. ሌላ ካለ ይግለፁ -----6	
203	በቋሚነት ደም መለገስ በበጎ ፈቃደኞች ላይ ጉዳት ያደርሳል?	ሀ. አዎ -----1 ለ. አይደለም -----2	መልስዎ አይደለም ከሆነ ወደ ጥያቄ 205 ይለፉ →
204	ለጥያቄ ቁጥር 203 መልስዎ አዎ ከሆነ በጎ ፈቃደኞች በቋሚነት ደም በመለገሳቸው ምን አይነት ጉዳት ሊደርስባቸው ይችላል ?	ሀ. የደም ማነስ -----1 ለ. በደም ተላላፊ በሽታ መያዝ-----2 ሐ. ክብደት መቀነስ -----3 መ. መንቀጥቀጥ/መንዘፍዘፍ-----4	

		ሠ. የደም ይዘት ወደነበረበት አለመመለስ-5 ረ. ሌላ ካለ ይግለፁ -----6	
205	አንድ ሰው ደም ለመለገስ ማሟላት የሚገባው መስፈርቶች ምንድን ናቸው? ከአንድ በላይ መልስ መስጠት ይቻላል	ሀ. ሙሉ ፈቃደኝነት -----1 ለ. ክብደት ≥ 45 ኪ.ግ -----2 ሐ. እድሜ ≥ 18 አመት -----3 መ. ጤናማ መሆን -----4 ሠ. በቂ የደም መጠን -----5 ረ. ሌላ ካለ ይግለፁ -----6	
206	አንድ ሰው በምን ያህል የጊዜ ገደብ ደም መለገስ ይችላል ?	ሀ. በየወሩ -----1 ለ. በየሶስት ወሩ -----2 ሐ. በስድስት ወር -----3 ረ. በአንድ አመት -----4 ሰ. አላውቅም -----5	
207	በአንድ የደም ልገሳ ወቅት ከደም ለጋሽ የሚወሰደው ደም መጠኑ በሚሊሊትር ምን ያህል ይሆናል? ከአንድ በላይ መልስ መስጠት ይቻላል	ሀ. 250 ሚሊ -----1 ለ. 350 ሚሊ -----2 ሐ. 450 ሚሊ -----3 መ. 500 ሚሊ -----4 ሠ. 1000 ሚሊ -----5 ረ. አላውቅም -----6	
208	ከደም ለጋሾች የሚወሰደው ደም ፈሳሹ ክፍል በምን ያህል ጊዜ ወደ ነበረበት ይመለሳል ?	ሀ. 24-48 ሰዓት -----1 ለ. አንድ ሳምንት -----2 ሐ. ሶስት ወር -----3 መ. አይመለስም -----4 ሠ. አላውቅም -----5	
209	ደም ከመለገስ የሚገድቡ ሁኔታዎች ምንድን ናቸው? ከአንድ በላይ መልስ መስጠት ይቻላል	ሀ. ዕኑ ህመም -----1 ለ. አስጊ የኑሮ ዘይቤ -----2 ሐ. ድካም -----3 መ. እርግዝና/ ጡት ማጥባት -----4 ሠ. መድኃኒት መጠቀም -----5 ረ. ከፍተኛ / አነስተኛ የደም ግፊት -----6 ሰ. አነስተኛ የደም መጠን -----7 ረ. ሌላ ካለ ይግለፁ -----8	
210	ከደም ለጋሾች የተሰበሰበው ደም የጤና ምርመራ ይደረግለታል ?	ሀ. አዎ -----1 ለ. አይደለም -----2	መልስዎ አይደለም ከሆነ ወደ ጥያቄ 212 ይለፉ
211	ለጥያቄ ቁጥር 210 መልስዎ አዎ ከሆነ የተሰበሰበው ደም ለየትኛዎቹ በሽታዎች ምርመራ ይደረግለታል ? ከአንድ በላይ መልስ መስጠት ይቻላል	ሀ. የኤድስ በሽታ -----1 ለ. የጉበት በሽታ -----2 ሐ. የቂጢኝ በሽታ -----3 መ. የደም አይነት -----4 ሠ. ሌላ ካለ ይግለፁ -----5 ረ. አላውቅም -----6	
212	የደም ማስተላለፍ ህክምና የሚያስፈልጋቸው የጤና ችግሮች የትኞቹ ናቸው? ከአንድ በላይ መልስ መስጠት ይቻላል	ሀ. ደም ማነስ -----1 ለ. ድንገተኛ የአካል ጉዳት -----2 ሐ. ዕኑ ህመም -----3 መ. ቀዶ ህክምና -----4 ሠ. ከእርግዝና ጋር የተያያዙ ችግሮች -----5 ረ. ለሰውነት ቃጠሎ -----6 ሰ. ጨቅላ ህፃናት -----7 ሸ. ሌላ ካለ ይግለፁ -----8	

ክፍል3: ግለሰባዊ ሁኔታን በተመለከተ

ተ.ቁ	ጥያቄ	ምርጫ	አስፍ/ፊ
301	ለመጀመሪያ ጊዜ ደም ለመለገስ ያነሳሳዎ ምክኒያት ምን ነበር	ሀ. የታመመ ሰው ስላስፈለገው -----1 ለ. የህሊና እርካታ ለማግኘት -----2 ሐ. የባለሙያ ቅስቀሳ ሰምቼ -----3 መ. የጤና ምርመራ ለማድረግ -----4 ሠ. ደም ለጋሽ ቤተሰብ/ጓደኛ ቀስቅሶኝ -----5 ረ. የሚድያ ጥሪ ሰምቼ -----6	
302	የደም አይነት ምንድን ነው ?		
303	በእርሶ አመለካከት በየሶስት ወሩ ደም ለመለገስ ብቁ ኖት ?	ሀ. አዎ -----1 ለ. አይደለም -----2	
304	በአጠቃላይ ለስንት ጊዜ ያህል ደም ለማለዋል?		
305	ከዚህ ቀደም ደም የተላለፈለት የቅርብ ጓደኛ ወይም የቤተሰብ	ሀ. አዎ -----1	

	አባል ያውቃሉ ?	ሊ. አይደለም -----2	
306	ደም ለጋሽ ጓደኛ ወይም የቤተሰብ አባል አሉት ?	ሀ. አዎ -----1 ለ. አይደለም -----2	

ክፍል 4: የቀድሞ የደም ልገሳ ልምድን በተመለከተ

ተ.ቁ	ጥያቄ	ምርጫ	እለፍ/ፊ
401	ለመጨረሻ ጊዜ ደም የለገሱበት ቦታ የት ነው	ሀ. ቋሚ ክለኒክ -----1 ለ. ተንቀሳቃሽ ክለኒክ -----2	
402	በመጨረሻ የደም ልገሳ ወቅት የለገሱት የደም መጠን ምን ያህል ነው ?	ሀ. 250 ሚሊ. -----1 ለ. 350 ሚሊ. -----2 ሐ. 450 ሚሊ. -----3 መ. አላውቅም -----4	
403	በመጨረሻ የደም ልገሳ ወቅት መርፌ ከተወገቡት ልገሳውን እስኪጨርሱ ምን ያህል ጊዜ ፈጅብዎ ?	ሀ. 1-5 ደቂቃ -----1 ለ. 6-10 ደቂቃ -----2 ሐ. 11-15 ደቂቃ -----3 መ. ከተጠቀሱት በላይ -----4 ሠ. አላስታውስም -----5	
404	የመጨረሻ የደም ልገሳ በመጠን ተጠናቋል ?	ሀ. አዎ -----1 ለ. አይደለም -----2	
405	ለደም ልገሳ የተወጉት መርፌ ህመም ሁኔታ ይግለፁ ?	ሀ. በጣም ያማል -----1 ለ. ያማል -----2 ሐ. መጠነኛ ህመም አለው -----3 መ. ጭራሽ አያምም -----4	
406	ለደም ልገሳ ከተወጉት መርፌ ጋር ተያይዞ ያልተጠበቀ ጉዳት አጋጥሞት ያውቃል ?	ሀ. አዎ -----1 ለ. አይደለም -----2	መልሶ አይደለም ከሆነ ወደ 408 ይለፉ
407	ለጥያቄ ቁጥር 406 መልሶ አዎ ከሆነ የጋጠሞዎን ያልተጠበቀ ጉዳት ይግለፁ? ከአንድ በላይ መልስ መስጠት ይቻላል	ሀ. የእጅ እብጠት -----1 ለ. የእጅ ህመም -----2 ሐ. ያልተሳካ የደም ስር መወጋት -----3 መ. ተደጋጋሚ የደም ስር መወጋት -----4 ሠ. የደም አወራረድ ችግር -----5 ረ. ሌላ ካለ ይግለፁ -----6	
408	በደም ልገሳ ያልተጠበቀ ጉዳት አጋጥሞዎት ያውቃል ?	ሀ. አዎ -----1 ለ. አይደለም -----2	መልሶ አይደለም ከሆነ ወደ 410 ይለፉ
409	ለጥያቄ ቁጥር 408 መልስዎ አዎ ከሆነ የጋጠሞት ያልተጠበቀ ጉዳትን ይግለፁ ? ከአንድ በላይ መልስ መስጠት ይቻላል	ሀ. ማዞር/ ማቅለሽለሽ -----1 ለ. ራስን መሳት -----2 ሐ. ድካም -----3 መ. ማስታወክ -----4 ሠ. ማላብ/ ራስ ምታት -----5 ረ. ለአጭር ጊዜ ንቃተ ህሊናን ማጣት -----6 ሰ. ለረጅም ጊዜ ንቃተ ህሊናን ማጣት -----7 ሸ. መገርጣት -----8 ቀ. በፍጥነት መተንፈስ -----9 በ. መንቀጥቀጥ/መንዝፍዝፍ -----10 ተ. መድረቅ -----11 ቸ. የልብ ችግሮች -----12 ኀ. አደጋ/መውደቅ -----13 ኘ. ሌላ ካለ ይግለፁ -----14	
410	ደም ለመለገስ ቀርበው በጤና ችግር ምክንያት ሳይለግሱ ተመልሰው ያውቃሉ?	ሀ. አዎ -----1 ለ. አይደለም -----2	መልሶ አይደለም ከሆነ ወደ 415 ይለፉ
411	ለጥያቄ ቁጥር 410 መልስዎ አዎ ከሆነ ለደም ልገሳ የተከለከሉበትን ምክኒያት ይግለፁ? ከአንድ በላይ መልስ መስጠት ይቻላል	ሀ. የደም መጠን ማነስ -----1 ለ. የውስጥ ደዌ/ የቀድሞ ህክምና -----2 ሐ. ለጤና አስጊ አድራጎቶች -----3 መ. የወር አበባ -----4 ሠ. እርግዝና -----5 ረ. ጡት ማጥባት -----6 ሰ. አነስተኛ የሰውነት ክብደት -----7 ሸ. ሌላ ካለ ይግለፁ -----8	
412	ደም መለገስ እንደማይችሉ የተነገሩት ለምን ያህል ጊዜ ነበር ?	ሀ. በጊዜያዊነት -----1 ለ. በቋሚነት -----2	መልሶ በቋሚነት ከሆነ ወደ 415 ይለፉ
413	ለጥያቄ ቁጥር 412 መልስዎ በጊዜያዊነት ከሆነ ጊዜዎን ሲጨርሱ ደም ለመለገስ ቀርበው ነበር	ሀ. አዎ -----1 ለ. አይደለም -----2	መልሶ አዎ ከሆነ ወደ 415 ይለፉ
414	ለጥያቄ ቁጥር 413 መልስዎ አይደለም ከሆነ	ሀ. አሁንም ብቁ ነኝ ብሎ አለማሰብ -----1	

	ምክኒያቱን ይግለፁ ?	ለ. ፍርሃት -----2 ሐ. ቀጠሮውን መርሳት -----3 መ. ሌላ ካለ ይግለፁ -----4	
415	በአጠቃላይ የመረሻው የደም ልገሳ ልምድ እንዴት ይገልፁታል ?	ሀ. ጥሩ -----1 ለ. መጥፎ -----2 ሐ. ሌላ ካለ ይግለፁ -----3	

ክፍል 5: የደም ባንክ አገልግሎት አሰጣጥን በተመለከተ

የሚከተሉትን የደም ባንክ አገልግሎት አሰጣጥን ይመዘኩ							
ተ.ቁ	የደም ባንክ አገልግሎት	እጅግ በጣም ጥሩ	በጣም ጥሩ	ጥሩ	አነስተኛ	በጣም አነስተኛ	ተግባራዊ አይሆንም
501	በእንግዳ ማረፊያ ቦታ የመቆያ ጊዜ						
502	የቀድሞ የደም ልገሳ ማህደሮ በፈለጉት ጊዜ መገኘት						
503	የእንግዳ ተቀባዩ አቀራረብና መልካም እርዳታ						
504	በፈለጉት ጊዜ መረጃ የማግኘት ሁኔታ						
505	ስለደም ልገሳ መረጃ የሚሰጡ እትሞችን ማግኘት ሁኔታ						
506	ለደም ልገሳ የጤና ምርመራ ሲደረግሎት የነበሮት ምቹት						
507	ደሙን ከእርስዎ የወሰደው/ችው ነርስ አገልግሎት አሰጣጥ						
508	ከደም ልገሳ በኋላ የተደረገሎት እንክብካቤ						
509	ቀጣይ የደም ልገሳ ፕሮግራሞችን የማስታወስ ሁኔታ						
510	ከደም ልገሳ በፊትና በኋላ የሚሰጥ የምክር አገልግሎት						
511	ለእርሶ የደም ባንክ የስራ ሰአት አመቺነት						
512	ቋሚ የደም ባንክ አገልግሎት መገኛ አመቺነት						
513	የሞባይ ደም መለገሻ ስፍራ አመቺነት						
514	አጠቃላይ ምቹት						

ANNEX V curriculum vitae of principal investigator

Curriculum Vitae - Dagmawit Fantahun			
Mob -0910026491 Email dagisha.f@gmail.com			
Personal details			
Age	26		
Sex	Female		
Date of birth	October 8, 1990 G.C		
Place Of Birth	Addis Ababa		
Nationality	Ethiopian		
Marital Status	Single		
Languages	Amharic , English		
Qualification			
Bachelor of Science Degree in Professional nursing from – Mekelle university with cumulative grade point of 3.60			
Masters of public health, in health system management from- Addis Ababa university with cumulative grade point of 3.6			
Educational Background			
Educational Level	Academic Year	Place	Awards
Elementary school (Grade KG-8)	1994-2003	Betellhem primary school	Certificate
Secondary school and preparatory (Grade 9-12)	2004-2007	Abyot Kirse secondary and preparatory school	Certificate
University	2008-2011	Mekelle university	BSC Degree with Great distinction in Nursing
University	2015- 2017	Addis Ababa university	Masters of public health in health system management

Relevant experience
Work experience - Oct 2012 - Oct 2015 in federal ministry of health national blood bank service as a nurse Leadership experience - Worked being a mobile blood collection team coordinator from June 2014-oct 2015 Computer skills - Microsoft Office, Internet Access, statistical analysis Community involvement - Certified for voluntarily contribution in the town of Adigudom Tigray region regarding first aid training, health education on reproductive health, family planning, sanitation and adolescence and drug use. - Awarded a recognition certificate for humanitarian contribution by donating blood voluntarily and regularly through club 20/25 (young voluntary non-remunerated regular blood donors club) - Good interpersonal as well as social relationship and good out looking for any social club.
Interests
Reading books ; Watching TV, Movies , listening to music, visiting historical places and appreciating nature
References
Mr. Abraham Zeleke Director of Blood Donor Recruitment Department national blood bank 0911806326 abrahamzeleke2@gmail.com