

ADDIS ABABA UNIVERSITY
SCHOOL OF PUBLIC HEALTH

Willingness to voluntarily donate blood among high school
students in Addis Ababa: Assessment of determinants using the
theory of planned behavior

By

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Approved by the Examining Board

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Dedication

I want to dedicate this thesis to my beloved father, the late Ato Negash Nigussie for being the best father, role model and good friend to me while he was alive. I always aspire to live his dreams.

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This study would have been incomplete and fruitless without the whole hearted support of teachers; most of them head of the Red Cross clubs in their respective high schools where the quantitative part of the study had been conducted. AtoTibebu Zelalem, Daniel Mekonnen, Workneh G/Tsadik, Kebede Gemechu and Argaw Gesesse are few of them that deserve special thanks for their great help in the data collection process but I would like to extend my heart felt gratitude to all teachers, students and regular blood donors that were involved in this study.

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TABLE OF CONTENTS

1) Dedication.....	i
2) Acknowledgement.....	ii
3) Table of contents.....	iii
4) List of tables.....	v
5) List of figures.....	v
6) List of annexes.....	vi
7) List of abbreviations.....	vii
8) Abstract.....	viii
9) Introduction.....	1
a) Background.....	1
b) Blood donation: Ethiopian situation.....	2
c) Statement of the problem.....	3
d) Theory of Planned Behavior (TPB) in relation to voluntary blood donation behavior.....	4
e) Conceptual framework.....	6
10) Literature review.....	8
11) Significance of the study	11
12) Objectives.....	12
a) General objective.....	12
b) Specific objectives.....	12
13) Materials and methods.....	13
a) Study design.....	13
b) Study area and period.....	13
c) Study population.....	13
d) Study variables.....	14
e) Operational definitions.....	15
f) Sample size and sampling procedure.....	15
g) Ethical consideration.....	17
h) Pre test.....	17
i) Data collection and data collectors.....	17

j) Quality control methods.....	18
k) Data processing, analysis and interpretation.....	18
l) Dissemination of findings.....	19
14) Results.....	20
15) Discussion.....	33
16) Strength and limitation of the study.....	37
17) Conclusion.....	38
18) Recommendation.....	39
19) References.....	40
20) Annexes.....	43

LIST OF TABLES

1) Table 1 : Summary of socio-demographic/ socio-economic status	20
2) Table 2 : Association of sociodemographic/socioeconomic status with willingness to VNRBDP and past blood donation practice.....	22
3) Table 3 : Uses of donated blood and proportion of students agreed.....	23
4) Table 4 : Association of perception of weight with past blood donation practice and willingness to VNRBDP.....	26
5) Table 5 : Factors associated with self efficacy suggested as reasons for refusal to VNRBDP by students that were not willing to VNRBDP.....	28

LIST OF FIGURES

1) Figure 1 : The theory of planned behavior model.....	6
2) Figure 2 : Model of psychological correlates of blood donation intention.....	7
3) Figure 3 : Steps in the sampling procedure.....	16
4) Figure 4 : Responses to a multiple choice question with 3 answers about The use of donated blood.....	24
5) Figure 5: Perceived knowledge about blood donation and use of donated Donated blood.....	25
6) Figure 6: Reason for previous blood donation of high school students In A.A.....	25

LIST OF ANNEXES

1) Annex A: Questionnaire used for the quantitative part of the study	
English version.....	44
2) Annex B: Questionnaire used for the quantitative part of the study	
Amharic version.....	48
3) Annex C: Points of discussion for FGD(English version).....	53
4) Annex D: Points of discussion for FGD(Amharic version).....	54
5) Annex E: Declaration.....	55

LIST OF ABBREVIATIONS (ACRONYMS)

A.A.: Addis Ababa

CI: Confidence interval

ERCS: Ethiopian Red Cross Society

EU: European Union

FGD: Focus Group Discussion

NBTS: National blood transfusion service

OR: Odds ratio

PBC: Perceived Behavioral control

PI: Principal investigator

TPB: Theory of Planned Behavior

VNRBDP: Voluntary non-remunerated blood donation practice

WHO: World Health Organization

Abstract

Back ground/ Statement of the Problem: Various researches indicate that among the different types of blood donors the safest blood comes from voluntary blood donors that donate blood purely out of altruism. WHO, EU and Red Cross discourage replacement and remunerated blood donation. In Ethiopia, however, largest proportion (76.6%) of blood is obtained by hospital based replacement donation. The need to shift to voluntary non-remunerated blood donation necessitates understanding of the determinants of voluntary blood donation among eligible segment of the society. High schools take the lion's share of voluntary blood donation thereby attracting the attention of the blood bank and this study. Theory of planned behavior has been repeatedly demonstrated to contain better constructs like self efficacy that can help predict blood donation behavior.

Objective: To determine prevalence and assess factors associated with voluntary donation of blood among secondary school students in Addis Ababa using the theory of planned behavior.

Methodology: A cross sectional survey of high school students in A.A. using anonymous, structured, self administered questionnaire supplemented by FGDs and an in-depth interview were used in accordance with the theory of planned behavior to investigate the determinants of willingness to voluntarily donate blood.

Results: 450 high school students, 42% females, were studied of which 70% were willing to voluntarily donate blood without remuneration. The proportions of students that had previously donated and regular blood donors are 10% and 1% respectively. Among socio-demographic variables sex was found to be associated with willingness to VNRBDP ($P=0.000$, $OR=2.68$ (1.70, 4.22)). Among the constructs of theory of planned behavior self efficacy, attitude and personal moral norm were found to be determining willingness to voluntary donate blood.

Conclusion: Compared to the proportion of students that have actually donated blood those who are willing to do so are significantly higher. TPB provides important constructs as determinants of willingness to VNRBDP. ERCS/Blood bank can use promotional activities that address donor's gender, perception of weight and knowledge, attitude, self efficacy and personal moral norm.

I. BACKGROUND

A. Introduction

Over a million blood units are collected from donors every year; nevertheless, many more millions still need to be collected to meet the global demand and ensure sufficient and timely provision of blood [1]. This shows that blood donation is a highly relevant issue worldwide that calls for the government commitment to it as well as research in the field. Generally donors are classified into the following categories: voluntary, family replacement and remunerated [2]. The safest donors are found among people who donate their blood voluntarily once or twice a year, purely out of altruism, and are self-aware of their unsuitability to serve as blood donors where there might be a slightest risk of causing health damage for blood recipients [3-6].

The possibility of catching transmitted infections like hepatitis, however, is much higher among paid donors [7, 8]. This might be accounted for by the fact that the latter come from environments where hepatitis cases are more commonplace; on the other hand, a person in need for money is more likely to conceal his/her true state of health, and monetary remuneration, which is often offered as a donor motivating means, might be highly appealing for people who live in desperate straits [9].

Thus World Health Organization is encouraging its member states to establish national blood collecting agencies that would operate on the basis of voluntary, non-remunerable blood donation [5]. Nevertheless, though monetary compensation is rejected by WHO, EU and Red Cross, monetary compensation for blood donation is permitted in Germany [10]. The reasoning behind this is that the frequency of

transfusion-transmitted infection markers in the German donor population is low and, taking into account very likely increased blood supply shortages, all measures that would allow to improve the supply, including monetary compensation, should be discussed without prejudice [10].

B. Blood donation: Ethiopian Situation

The Ethiopian Red Cross Society (ERCS)-National blood transfusion service (NBTS)/National blood bank was established in 1969 mainly through the assistance of the Finish Red Cross Society and the steady support of the Ethiopian Ministry of Health. At present it has 10 regional branches and some more are under construction.

Annual national blood demand is about 60,000-80,000 units. Annual blood collection at a national level is, however, only 43% (of which 8.84% collected from voluntary non-remunerated blood donors, 16.53% from mobile sessions and 76.64% from family replacement donors) [11]. The catastrophe because of this imbalance has not exactly been described.

The highest voluntary blood donation rate ever attained is 43% in Addis Ababa. The proportion of voluntary blood donors has since shown a downward trend from 24% in 2004 to 17% in 2005. The proportions of voluntary donation in Addis Ababa were 22.8% and 31.7% in 2006 and 2007 G.C. respectively.

Family replacement hospital based donation still remains the main source of blood [12]. It is imperative to shift, at least to larger proportion of source of blood, to the voluntary non-remunerated blood

donation. Besides financial and logistic capacity, this calls for a concerted effort to promote voluntary blood donation among the eligible population after identifying the gap for intervention.

In Ethiopia, much of the voluntary blood donation is obtained from secondary school students of Addis Ababa. However, increasing the proportion of voluntary blood donors in the secondary school of the country can safely yield the amount of blood required for transfusion. This is the rationale behind focusing this study on secondary school students.

C. Statement of the Problem

Based on literature review, it can be stated that both developed and developing countries have problems with the non-remunerated blood donation system [13, 14, 15, 16]. What encourages an individual to donate blood? Answers to this question make it possible for blood collection agencies to determine which individuals are likely to be new donors and enable to make predictions of prospective donors.

Blood transfusion, usually needed in life or death situations, is the scarcest of all medicaments in Ethiopia. In Ethiopia, about 70% of the land is malarious. Other tropical diseases such as tuberculosis, leishmaniasis, Kalazar, and hookworm infestation, are common making chronic anemia rampant. Expansion in the provision of elective and emergency surgical, obstetric and gynecological services has made the supply of donors fall far short of the demand [17].

On top of the above health problems war and famine have been common occurrences making blood and transfusion a priority need. Nevertheless, the entire situation is looked upon as being part of the

normal pattern of life. Thus, the meaning of health; the gravity with which death is taken and the motivation to save lives is markedly different from what is seen in developed communities. It is, hence, crucial to investigate the situation in the same setting to identify the variables that are amenable to change.

In examining the existing deficiency of blood donation it is imperative to scrutinize the efforts of the national blood bank/ERCS from the perspective of potential donors since this can affect their attitude. Each year the national blood bank attempts to recruit new donors by means of posters, leaflets, and other promotion activities. The effectiveness of specific recruitment activities has not been evaluated but recruitment has had limited success, especially when blood donation is purely voluntary and non-remunerated that is proven by the proportion of students that have actually donated blood voluntarily that is very low.

One reason may be that attempts to recruit new donors in Ethiopia have not been based on an evidence-based understanding of the determinants of the decision to donate blood. This is, in turn attributed to the fact that virtually no research has ever been conducted to assess the determinants of voluntary blood donation.

D. Theory of planned behavior (TPB) in relation to voluntary blood donation behavior

One approach to understanding the determinants of voluntary blood donation is to use the psychological antecedents that have been found to predict blood donation such as those specified by the Theory of Planned Behavior (TPB) [18, 19, 20, 21]. According to Ajzen the constructs of the theory of planned behavior are defined as follows:

Behavior: is the manifest, observable response in a given situation with respect to a given target. Single behavioral observations can be aggregated across contexts and times to produce a more broadly representative measure of behavior. In the TpB, behavior is a function of compatible intentions and perceptions of behavioral control [22].

Intention: is an indication of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior [22].

Attitude toward a behavior is the degree to which performance of the behavior is positively or negatively valued [22].

Subjective norm is the perceived social pressure to engage or not to engage in a behavior [22].

Perceived behavioral control refers to people's perceptions of their ability to perform a given behavior [22].

Behavioral belief is the subjective probability that the behavior will produce a given outcome. Although a person may hold many behavioral beliefs with respect to any behavior, only a relatively small number are readily accessible at a given moment [22].

Normative beliefs refer to the perceived behavioral expectations of such important referent individuals or groups as the person's spouse, family, friends [22].

Control beliefs have to do with the perceived presence of factors that may facilitate or impede performance of a behavior [22].

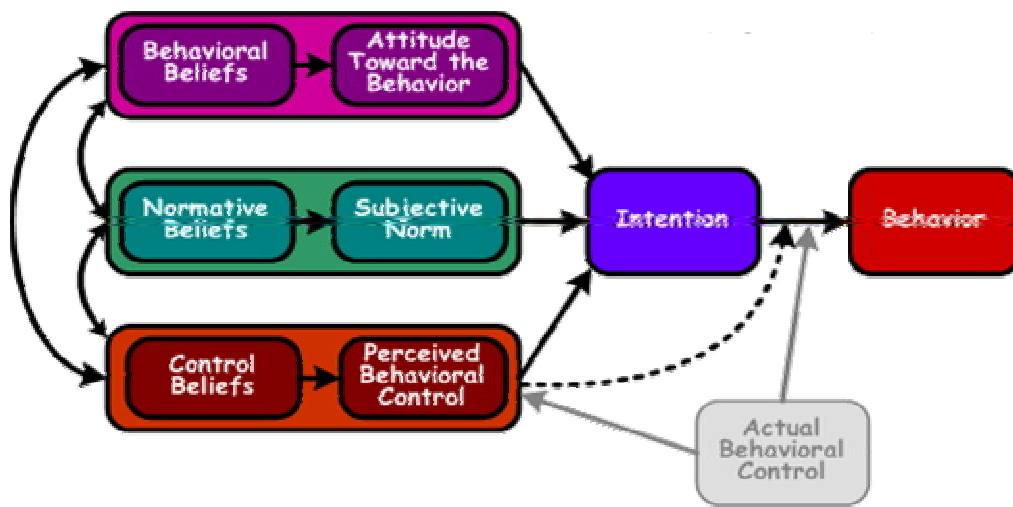


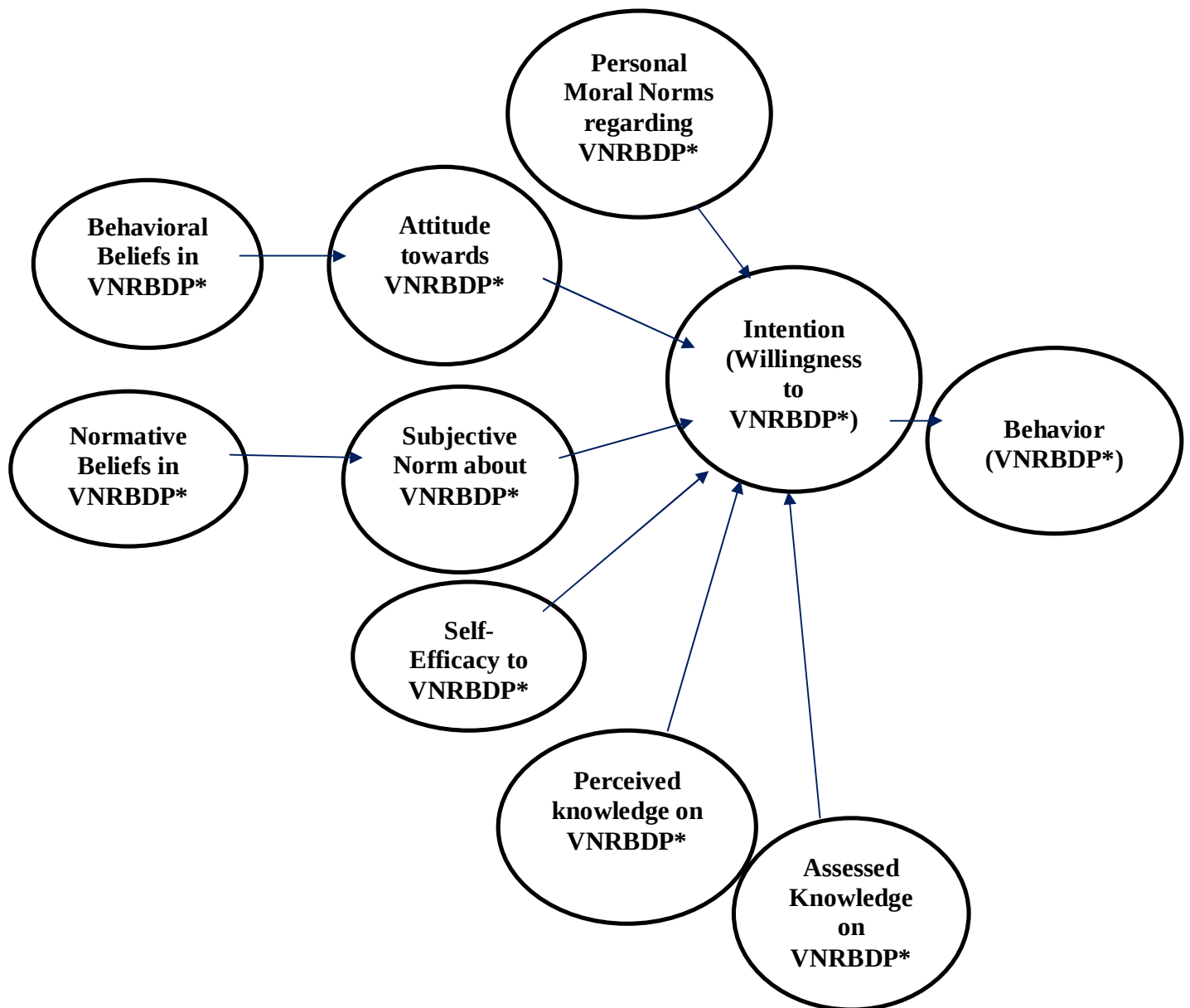
Fig. 1 Theory of planned behavior model [22].

According to this theory (Fig.1), behavioral intention is the primary motivational determinant of individual behavior; the more someone intends to engage in a particular behavior, the more likely this person will undertake it [23, 24]. Intention to donate blood is the most important variable among the constructs of the TPB. Previous researches have found that such intentions account for 23 to 55 percent of the variance in blood donation behavior [20, 21].

According to the TPB, strength of intention is determined by three factors: attitude, subjective norm, and perceived behavioral control [25, 26, 27].

E. Conceptual Framework. The conceptual framework for this study was basically derived from the theory of planned behavior with substitution of perceived behavioral control with self efficacy since researches suggested that self efficacy is a better predictor of intention in the context of blood donation behavior [28]. Introduction of personal moral norm and assessing both the perceived and

assessed knowledge were also found to be important based on literature review [27,28]. (Fig.2)



**VNRBDP=Voluntary Non Remunerated Blood Donation Practice*

Fig.2 Model of psychological correlates of blood donation intentions modified [29].

II. LITERATURE REVIEW

The increased demand for blood products by the health service has meant that hospitals are dependent on a constant supply of blood. However, despite this need, it has been estimated that whilst 67% of men and 55% of women are eligible to give blood in the US, only 8% actually donate in any given year. Moreover, most blood is given by a relatively small number of repeat donors. This shortage has undoubtedly become more alarming amidst the transfusion- related tragedies and scandals associated with the AIDS pandemic. Consequently, there is a need to recruit and retain more blood donors [20].

The factors that influence an individual's decision to give blood consist of a collection of an individual's specific observable characteristics such as socio-demographic factors and unobservable characteristics such as the degree of altruism [15, 16]. In order to facilitate the process of transition to non-remunerated donation, it is essential to examine and understand donor behavior. According to some research findings, blood donation correlates with donor gender, place of birth, occupation and knowledge about donation as well as such social attitudes as health related, structural and social-economic incentives [18].

Researchers have applied the TPB to blood donation [19, 20, 21] and found that the model accounted for 60 to 70 percent of the variance in intentions to donate blood, with PBC, or self-efficacy, and attitudes being the most important determinants. Contrary to the theory, however, two previous studies found that perceived social norm was not a significant predictor of blood donation intentions [19, 21].

Ajzen has noted that the TPB could be extended if further constructs are found to enhance the prediction of intention or behavior and previous research indicates that personal feelings of responsibility and the awareness of a need for blood are important determinants of blood donation behavior [23, 28, 29, 30].

Armitage and Conner found that personal moral norm, that is, a measure of the feeling that one is morally obliged to undertake a behavior, is an important predictor of the intention toward blood donation [19]. It is also plausible that knowledge about blood donation and how much knowledge people think they have may affect intentions to give blood.

Anticipated regret in relation to not performing a behavior has also been found to predict other health-related intentions [30, 32]. But anticipated affective consequences have not been examined in the context of decisions to become a blood donor. The higher the intentions to perform a particular behavior are, the more likely it is that the behavior will indeed be performed [25, 26, 33]. For instance, the more one intends to become a blood donor, the more likely it is that this person will register for blood donation and make a first donation.

In perhaps the first study to test directly the TPB in the context of blood donation, Giles and Cairns [20] found that attitude, subjective norm and perceived control together accounted for 60.5% of the variance in behavioral intention. Whilst this study has been criticized for basing its selection of attitudinal and normative beliefs on prior research there was strong evidence of a direct link between perceived

behavioral control and intention, not mediated by attitude and subjective norm [19].

Among the three determinant factors of behavioral intention in the theory of planned behavior model self-efficacy, closely related to the perceived behavioral control (PBC) is the one contributing most for blood donation behavior. PBC bolsters intention because we are not motivated to undertake tasks at which we expect to fail. PBC also predicts behavior directly when it reflects actual control over outcomes [28].

PBC is closely related to Bandura's construct of self-efficacy (that is, the belief that one can successfully perform a target behavior) [28, 29]. When these two constructs have been compared as predictors of blood donation intentions, self-efficacy has been found to be the stronger correlate [20]. Moreover there is a greater body of research showing that self-efficacy beliefs are amenable to modification [27-29]. Thus, as Giles and colleagues suggest, self-efficacy may be a more useful correlate of intention than PBC, at least in the context of blood donation [28].

Fear for injections which has been associated with fear of needles, hospitals, surgical operations, wounds, pain, doctors, and dentists has also been shown to contribute for the low number of voluntary blood donations [19]. The fear was found to be unreasonably intense in some of the subjects that signals the importance of the approach in recruitment of blood donation [29].

III. SIGNIFICANCE OF THE STUDY

This study was intended to come up with the following major findings and fill the existing information gap.

- ✚ Prevalence of students that have knowledge about the importance of voluntary blood donation.
- ✚ Prevalence of secondary school students willing to voluntarily donate blood.
- ✚ Prevalence of past blood donation practice and regular donors among secondary school students in Addis Ababa
- ✚ Socio-demographic, attitudinal factors associated with voluntary blood donation.

It has also aimed to forward practical recommendations on areas of emphasis on recruitment, retention, and motivation of donors in order to enhance the current voluntary blood donation practice.

IV. OBJECTIVES

A. General Objective: To determine prevalence and assess factors associated with willingness to voluntarily donate blood among secondary school students in Addis Ababa in 2007/08 academic year.

B. Specific Objectives

- o Examine socio-demographic and Socio-economic factors associated with VNRBDP and past donation practice.
- o Determine prevalence of knowledge of the importance of voluntary non remunerated blood donation practice (VNRBDP) and willingness to VNRBDP.
- o Determine prevalence of prior blood donation practice (both as replacement and voluntary donation).
- o Assess the perceived effect of remuneration with money or other incentives in encouraging voluntary blood donation and past donation practice.
- o Assess self efficacy to VNRBDP by assessing their perception of overall fitness of themselves and stresses of blood donation like fear of injection
- o Examine the subjective norm, personal moral norm and attitude towards VNRBDP.

V. MATERIALS AND METHODS

A. Study design- descriptive cross sectional survey with some analytic component of regular secondary school students in Addis Ababa in the 2007/08 academic year.

B. Study area and period- the study was conducted in secondary schools in Addis Ababa from November 2007 to June 2008. The city has been divided into 10 sub cities for administrative purposes. The total number of secondary schools and regular students enrolled were 118 and 114,993 respectively in the 2006/2007 academic year in Addis Ababa [33].

C. Study population

1. *Study population:* Regular students in the selected secondary schools and in Addis Ababa in the 2007/2008 academic year and young regular blood donors.
2. *Target population:* All regular secondary school students in urban areas of the country.
3. *Inclusion Criteria:* All secondary school (Grades 9-12) students attending classes at regular time in schools that were primarily established for Ethiopian students in the 10 sub cities of Addis Ababa.
4. *Exclusion Criteria:* Students enrolled in the following categories of schools were excluded from the study
 - a) Schools that enroll students of either grades 9-10 or 11-12 only
 - b) Schools with special student population such as prisons
 - c) Foreign community schools

D. Study Variables

1. Independent variables

a) Socio demographic or Socio economic factors

✚ Sex

✚ Marital Status

✚ Age

✚ Religion

✚ Average monthly family
income

✚ Ethnicity

✚ Educational status of the
family/guardians

b) Knowledge of the importance of VNRBDP

c) Self efficacy or perceived behavioral control

✚ Perception of overall fitness to donate blood of oneself.

✚ Weight (Perception as low, normal, high)

✚ Presence of known disease

✚ Fear of diagnosis of new/previously unknown illness

✚ Fear of injection, seeing blood, fainting or other illness following
blood donation

d) Subjective norm regarding VNRBDP

e) Personal moral norm

f) Attitude towards VNRBDP

2. Dependent Variables

✚ Prior blood donation practice

-  Regular VNRBDP
-  Willingness to VNRBDP
-  Willingness to donate blood if paid

E. Operational definitions

1. **Personal moral norm** regarding blood donation: the feeling that one is obliged to donate blood to be used by a strangers non remunerated.
2. **Perceived knowledge:** the knowledge of subjects regarding blood donation practice rated by themselves as either “know nothing”, “little knowledge”, “enough knowledge” or “better knowledge”.
3. **Assessed knowledge:** the knowledge of subjects regarding blood donation as assessed using questions about the use of donated blood and what kind of people can donate.
4. **Perceived weight:** the weight of subjects described by themselves as either “low weight/ skinny”, “adequate/optimal weight” or “over weight/obese”.

F. Sample size and Sampling Procedure:

1. *Sample Size determinatio:* the sample size was calculated using prevalence of VNRBDP of secondary school students that willingly donated blood in response to the request from mobile team of ERCS in their school. With the assumption that all willing students do not donate blood for weight and other medical reasons the prevalence was taken to be 10%. Taking this prevalence, 95% confidence interval, 5% precision, with design effect of 3 the sample size was 415 using the formula below. Design effect of 3 was used as there was a 3 stage selection. Adding 10% non-response rate the total sample size became 457.

$$N = \frac{Z^2 * P * Q}{D^2}$$

N = Sample size

Z = the abscissa of the normal curve that cuts off an area at confidence level of 95% (1.96)

P = Prevalence (0.1)

Q = 1 - prevalence (0.9)

D = Absolute precision (0.05)

2. *Sampling procedure:* A multi stage sampling technique, described below, was employed in order to select a fairly representative sample of students in Addis Ababa.

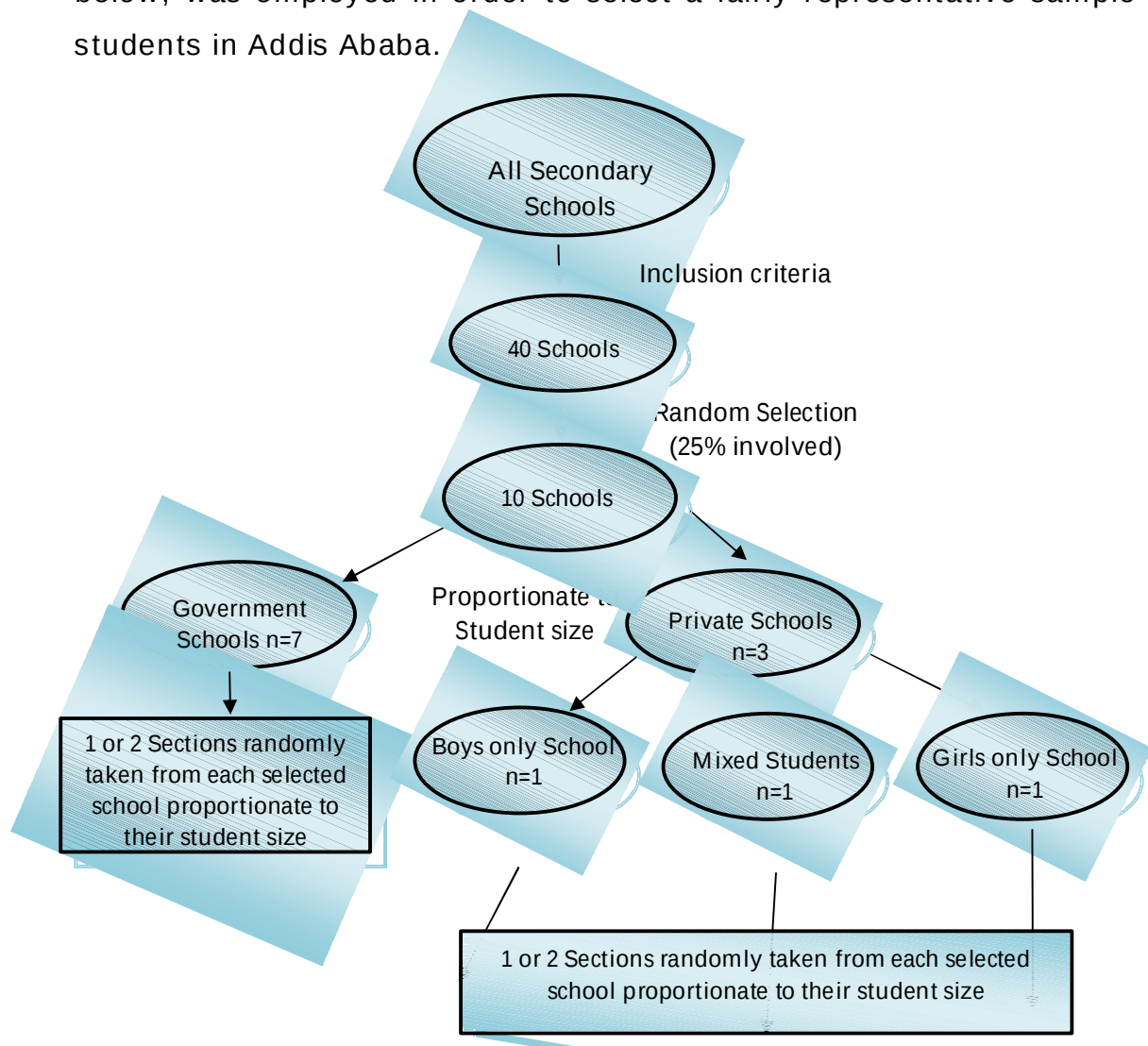


Fig. 3 Steps in the sampling procedure

G. *Ethical Consideration:* Ethical clearance was obtained from the school of public health, Addis Ababa University. Formal letter of request to the head masters of the secondary schools was obtained from the school of public health, AAU and consent was primarily obtained from the head masters of the schools to be studied. Data were collected with the consent of students after they were informed about the objective of the study, how long it takes to fill the questionnaire and the fact that they have the right to decide not to participate or discontinue filling the questionnaire or focus group discussion if they wanted to. Questionnaires were anonymous and students were reassured of the confidentiality of the information they provide to this study. A copy of the result of this study will be sent, at least electronically, to the schools and educational bureaus that were involved in the study.

H. *Pre test* Prior to the study, the data collection instruments were tested on students from governmental and private schools that were not involved in the study but similar to those involved in the study.

I. *Data Collection and Data collectors*

1. *For the Quantitative Part:* A structured questionnaire prepared in English and translated into Amharic language was the tool used for data collection. Questions regarding the TPB were adopted from some of the references listed in this report with some modifications. The questionnaires were self-administered ones. One or two teachers, including the school's Red Cross club leader, were involved in the data collection process after training. They were supervised by the principal investigator while data collecting.

2. *For the Qualitative Part:* Three focus group discussions and one in-depth interview were conducted with young men and women. Convenience

sampling method was used. Self formed groups of regular blood donors from the community and Addis Ababa University were used as focus group.

Ages of the FGD members were comparable with the high school students involved in the quantitative part of the study. Homogeneity was ensured as the participants formed the group themselves. List of the self formed groups was obtained from the ERCS. Semi structured questionnaire prepared in English and translated to Amharic was used for the FGD to focus on important topics. About 7-8 participants per FGD were involved. The number of FGDs was limited to 3 because of very small number of regular blood donors and reasonable degree of saturation was appreciated on the issues discussed. Each FGD was conducted by the principal investigator. All the discussion was recorded with a tape recorder and major points were noted by the PI.

J. Quality Control Methods

The principal investigator was available during data collection from almost every school and conducted the focus group discussion. Pretest was done and the tools were modified accordingly. Completeness of questionnaire with emphasis on some questions that tend to be omitted was checked at the time of data collections.

K. Data Processing, analysis and interpretation

The collected quantitative data were first checked for completeness and then data were coded, entered, and analyzed using SPSS version 15. Continuous variables like age and income were first transformed into categorical variables before they were analyzed. First, frequency of all the variables in the questionnaire was determined. Secondly, cross tabulation was done between important variables and their significance was seen

using the chi-square test, and odd ratio and 95% CI was calculated. Important variables were entered and analyzed using multiple logistic regressions in order to control for confounding variables. Here, only those variables with $P < 0.005$ in the univariate analysis were entered.

The findings from the FGD were documented properly on the date of interview. The findings were also crosschecked with the findings of the quantitative study to see agreements and differences between the two.

L. *Dissemination of results:*

Stake holders will be invited on the day of defense/ presentation of this study. The findings of the research will be disseminated to the ERCS, FMOH, Addis Ababa Health Bureau, NGOs working on safe blood donation and funding institution for this research as necessary using available methods. Copies of the research report will also be available in the department library. Efforts will be made to publish the research findings in Ethiopian Journal of Health Development or any other reputable journal.

VI. RESULT

A. Socio-Demography/Socio-Economic Back ground

Out of the calculated sample size of 457 only 450 were studied (non response rate of 1.5%). The socio demographic/socio economic data of study subjects has been summarized in the table below.

Study subjects were predominantly orthodox (77.3%), Amhara (47.1%), single (96.7%) with age nearly normally distributed having almost equal mean, mode and median.

Table 1: *Summary of socio demographic/socio economic status of high school students in A.A. May 2008.*

Variable	Frequency	Percent (%) (n=450)
Sex		
Male	260	57.8
Female	190	42.2
Total	450	100.00
Age		
15 years	27	6
16 years	81	18
17 years	196	43.6
18 years	99	22
19 years	47	10.4
Mean age=17.2 years		
Median age= 17 years		
SD=1.35		
Total	450	100.00
Type of School		
Governmental/Public	313	69.6
Private**	137	30.4
Total	450	100.00
Religion		
Orthodox	348	77.3
Muslim	40	8.9
Protestant	50	11.1
Catholic	8	1.8
Other	4	0.9
Total	450	100.00
Ethnicity		

Oromo	81	18
Amhara	212	47.1
Tigre	63	14
Gurage	59	13.1
Others	35	7.8
Total	450	100.00
Marital Status		
Single	435	96.7
Married	13	2.9
Separated	2	0.4
Total	450	100.00
Average Monthly Family Income		
1000 birr	143	31.8
1001-2500 birr	127	28.2
2501-5000 birr	93	20.7
>5000 birr	87	19.3
Mean=5,028.63 birr		
Median* = 2,000 birr		
SD= 17,640		
Total	450	100.00
Mother's or Female Guardian's Educational Status		
Illiterate	59	13.1
Grades 1-6	97	21.6
Grades 7-12	102	22.7
Above 12 th grade	192	42.7
Total	450	100.00
Father's or Male Guardian's Educational Status		
Illiterate	38	8.4
Grades 1-6	60	13.3
Grades 7-12	85	18.9
Above 12 th grade	267	59.3
Total	450	100.00

**Median is better measure of central tendency of average family monthly income with a very wide range (50 birr to 320,000 birr)*

*** Church or Mosque managed and missionary schools were considered as private schools*

Sex, religion, ethnicity, average monthly family income and mother's or female guardian's educational status were initially seen to be associated with VNRBDP whereas sex, age, type of school, income and maternal or female guardian's education were associated with willingness to donate blood if paid. (Table 2)

Table 2. Association of socio-demographic/ socio-economic status with willingness to VNRBDP and past blood donation practice among high school students in A.A. May 2008

Variable	Association with Willingness to VNRBDP		Association with Willingness to donate blood if paid	
	Sig. (P<0.05)	Unadjusted OR (CI=95 %)	Sig. (P<0.05)	Unadjusted OR (CI=95 %)
Sex – Male	0.000	2.78(1.77-4.34)*	0.006	2.02(1.22-3.33)*
Female	0.000	1.65	0.000	0.16
Age- 15 years [#]	0.405	1.49(0.59-3.77)	0.074	2.14(0.93-4.95)
16 years [#]	0.738	1.09(0.65-1.84)	0.534	0.82(0.44-1.54)
17 years [#]	0.755	1.07(0.71-1.61)	0.015	1.78(1.12-2.82)*
18 years [#]	0.610	1.14(0.69-1.87)	0.063	0.55(0.29-1.03)
19 years [#]	0.156	0.64(0.34-1.19)	0.049	0.35(0.12-0.997)*
Type of School-				
Gov't/ Public	0.107	0.69(0.43-1.09)	0.00	0.32(0.20=0.51)*
Private	0.000	3.15	0.00	0.51
Religion-				
Orthodox [#]	0.447	1.20(0.75-1.94)	0.815	0.94(0.54-1.62)
Muslim [#]	0.010	0.42(0.22-0.81)*	0.429	0.70(0.28-1.71)
Protestant [#]	0.128	1.76(0.85-3.62)	0.676	1.16(0.57-2.38)
Catholic [#]	0.314	2.95(0.36-24.20)	0.219	2.48(0.58-10.60)
Others [#]	0.085	0.14(0.01-1.32)	0.793	1.36(0.14-13.19)
Ethnicity-Oromo [#]	0.635	1.14(0.67-1.95)	0.218	0.66(0.34-1.28)
Amhara [#]	0.035	1.56(1.03-2.35)*	0.335	1.26(0.79-2.00)
Tigre [#]	0.453	0.80(0.46-1.42)	0.133	0.55(0.25-1.20)
Gurage [#]	0.152	0.66(0.37-1.17)	0.415	1.31(0.68-2.51)
Others [#]	0.071	0.52(0.26-1.06)	0.361	1.45(0.65-3.21)
Average Monthly Family Income				
1000 birr [#]	0.074	0.68(0.44-1.04)	0.066	0.61(0.35-1.03)
1001-2500 birr [#]	0.275	0.78(0.50-1.22)	0.035	0.54(0.30-0.96)*
2501-5000 birr [#]	0.036	1.80(1.04-3.13)*	0.293	1.34(0.78-2.32)
>5000 birr [#]	0.237	1.38(0.81-2.37)	0.001	2.52(1.49-4.27)
Mother's or Female guardian's educational status				
Illiterate	0.053	1.68	0.000	0.135
Grades 1-6	0.584	1.21(0.61-2.38)	0.649	1.25(0.47-3.31)
Grades 7-12	0.444	1.30(0.66-2.55)	0.736	1.18(0.45-3.12)
Above 12 th grade	0.046	1.89(1.01-3.52)*	0.014	2.91(1.24-6.80)*
Father's or Male guardian's educational status				
Illiterate	0.109	1.71	0.00	0.188
Grades 1-6	0.755	0.88(0.38-2.02)	0.735	0.82(0.26-2.58)
Grades 7-12	0.414	1.40(0.62-3.14)	0.809	0.88(0.30-2.54)
Above 12 th grade	0.157	1.67(0.82-3.42)	0.286	1.65(0.66-4.12)

* Statistically significant associations seen

[#]each sub group is compared with other sub groups altogether taken as a reference group

Sex is the only socio-demographic variable that has been found to be associated with VNRBDP when analyzed using multiple logistic regression ($P=0.000$, $OR=2.68$ (1.70, 4.22)). All the other variables that were associated with VNRBDP in univariate analysis such as maternal education, family income and religion were not seen to be associated in the multiple logistic regression.

B. Knowledge about the importance of VNRBDP

Almost all (98.9%) of the subjects reported that they know people donate their blood for future use of others. The response to a multiple choice question with 3 correct answers about the use of donated blood has been summarized in the table below.

Table 3: Correct statements about the use of donated blood and number/proportion of high school students in A.A. that agreed with statements. May 2008

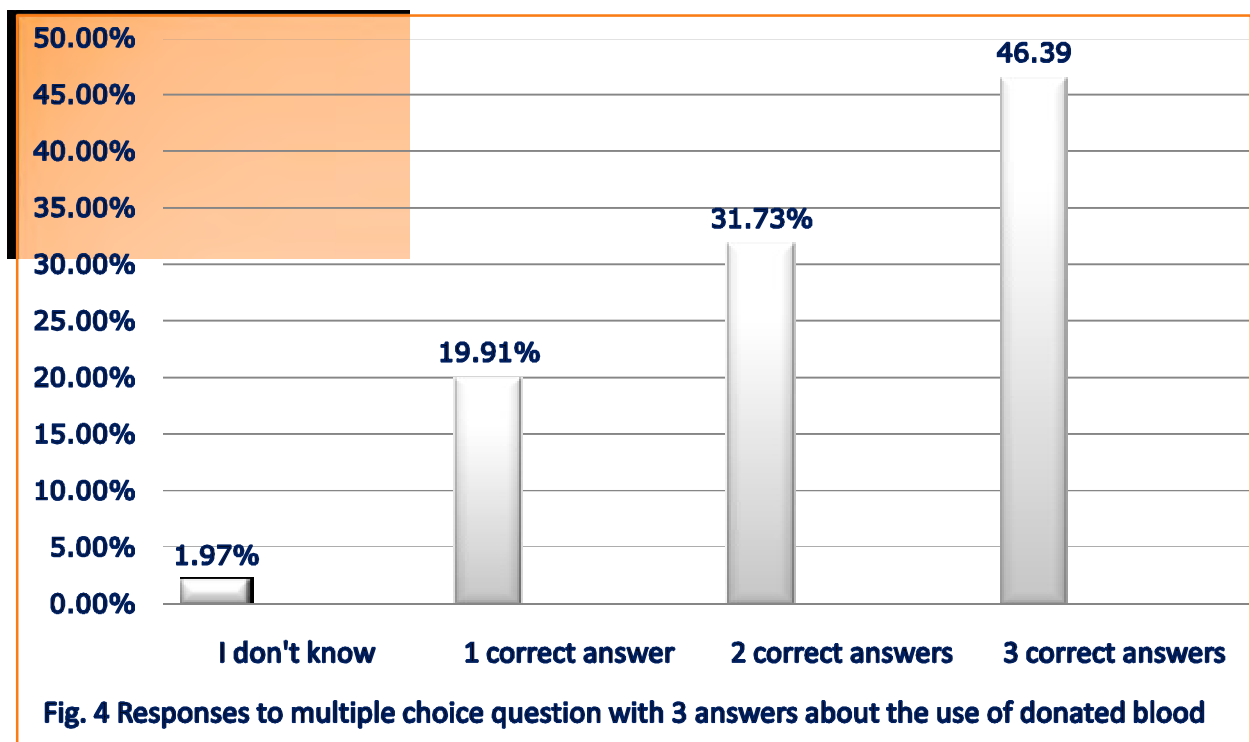
Use of donated blood	Respondents who Agreed	
	N	%
For bleeding patients when recommended by doctor	414	92.1
For patients with anemia of different causes when recommended by doctor	331	73.5
For patients to be operated	256	56.9

Only 1.97% of study subjects responded “I don’t know” to the question with list of answers about the use of blood. Nearly half of the subjects have correctly chosen all the three answers for the question (Fig.4)

Students were also requested to list what kind of people cannot donate blood and 81.1% of them gave at least one correct answer. Perceived knowledge has also been assessed by requesting students to rate their knowledge about blood donation as “know nothing”, “little knowledge”, “enough knowledge”, “better knowledge” and “not sure”. Result has been summarized in Fig. 5.

C. Past blood donation and Regular blood donation practice

About ten percent of the study subjects said they had previously donated their blood. Majority of the students that previously donated blood did so as voluntary donors in response to the request from the mobile team of ERCS/blood bank. Reasons for donation of blood have been summarized in fig.6.



Among study subjects only 1.6 % (n=7) reported to have donated blood more than once and 1.1 % (n=5) reported to be regular donors.

D. VNRBDP and Perceived effect of remuneration with money or other incentives on blood donation practice.

Over two third (70.7%) of the students said they were willing to donate their blood non-remunerated. Though 30% of the respondents said that they were not willing to donate blood non-remunerated, much of them (95%) said they would be willing to donate their blood if their family, relatives or friends require it.

Remuneration with money or other incentives: Larger proportion of the respondents (78.3%) that said they were willing to VNRBD (318) said that they would not be willing to donate blood if they were paid.

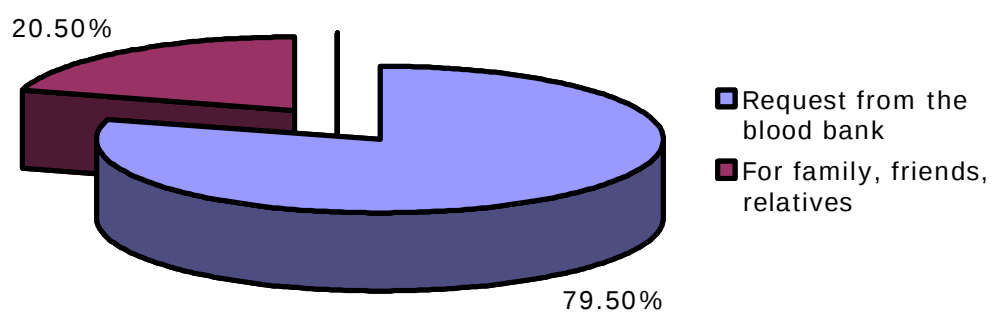
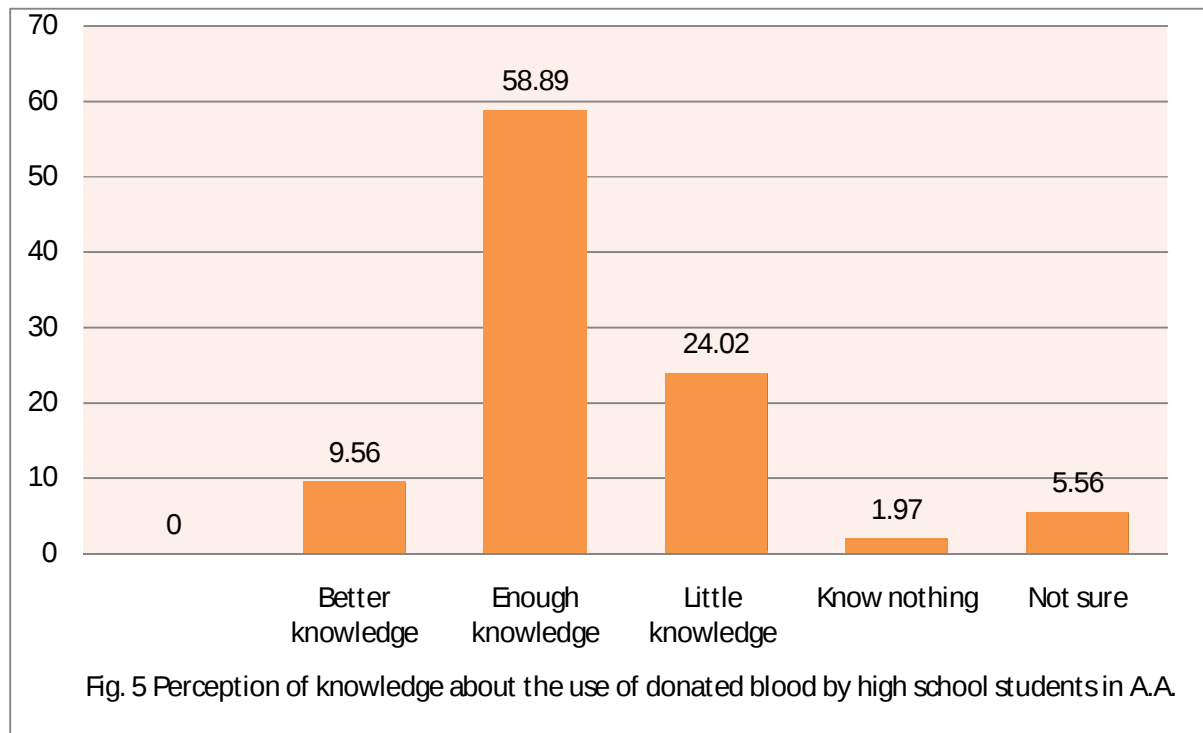


Fig. 6 Reasons for previous blood donation by high school students in A.A.

On the other hand, 15.2% of those that refused VNRBD (n=132) said they would be willing to donate their blood if they were paid.

The amount of money students suggested to be given for a single unit of blood ranges from birr 3 to 25,000. Mean=birr 4,914.98; Median=birr 100.

About two third (65.11%) of respondents have supported the idea of provision of non monetary incentives for voluntary blood donors.

The incentives they suggested include materials, psychological, health related and food and drinks.

E. Self efficacy/Perceived behavioral control

“Overall fitness to be a blood donor”: Students were asked if they considered themselves as capable of donating blood and 58% of the study subjects thought they were fit to donate blood. Statistically significant association was seen between responses to this question and willingness to VNRBDP. However, because of the endogenous nature of this thought to willingness to voluntarily donate blood regressing it on VNRBDP and making generalization is not appropriate.

Weight: Weight of subjects ranged from 33-90 kg. Mean=52.3 Kg. No association has been drawn between weight and willingness to VNRBD or past blood donation practice. Perception about one’s weight, however, has been found to be associated with both past blood donation practice and willingness to VNRBD independently. Results have been summarized in table 4.

Table 4. Association of perception of weight/body size with past donation practice and willingness to VNRBDP among high school students in A.A.

Perception of weight/body size	Positive Past donation history		Willingness to VNRBDP	
	P-value	OR(CI)	P-value	OR (CI)
“heavy/obese”	0.003	5.89(1.80,19.20)*	0.026	3.22(1.15,9.05)*
“Optimal/average”	0.107	2.10(0.85,5.18)	0.006	1.88(1.20,2.95)*
“low weight/skinny”	0.000	0.054	0.035	1.49

Students were also asked if their weight had any effect on their willingness to voluntarily donate blood and 24.9% responded that their decision to donate blood could be affected by their low weight; 3.3% said they wanted to donate blood because they were obese and 62.7% responded their weight had no effect on their decision to voluntarily donate blood.

Subjects that were not willing to voluntarily donated blood also put forward some factors associated with self efficacy as a reason (table 5). Some of the factors like fear of becoming anemic were mentioned by as much as 43% of the respondents but no statistically significant association was found with any of the reasons listed in table 5.

F. Attitude towards VNRBDP

Attitude was assessed using Likert scale on 5 questions. Combining those respondents that “strongly agreed” and “agreed” with the statements that assess positive attitude 82% of the students had positive attitude towards VNRBDP. Responses to attitude questions had been found to be associated with willingness to voluntarily donate blood. Agreement with statements like “I can save many people’s lives if I regularly donate blood to the blood bank was seen to be statistically significantly associated. Yet, the endogenous nature of attitude towards voluntary blood donation and willingness to VNRBDP makes testing for association between the two using multiple logistic regression and making any generalization inappropriate.

Mistrust in the blood bank or the Red Cross society: 28% of the respondents that were not willing to VNRBDP said their reason was lack of trust in the blood bank or the Red Cross society. Yet, no statistically significant association was found among these variables.

Table 5. Factors associated with self efficacy that were suggested as reasons for refusal to VNRBDP by students that were not willing to VNRBDP among high school students in A.A. May 2008.

Reasons for refusal to VNRBDP	Proportion of respondents (%)
Presence of known or diagnosed disease	7.6
Suspicion of having unknown/undiagnosed disease	13.3
Fear of injection	20.7
Fear of seeing blood	7
Fear of loss of consciousness	33.6
Fear of becoming anemic	43.4
Fear of being diagnosed to have a disease while donating blood	12.6
Belief that one doesn't make a difference by donating blood	13.3

G. *Subjective norm regarding VNRBDP*

Fifty five percent (55.11%) of the respondents said their important decisions in their lives including blood donation were influenced by “significant others”. 89.9% of them said their families influence their decision to donate blood. No statistically significant difference was noticed between those that claimed to be influenced by “significant others” and those who were not regarding willingness to voluntarily donate blood.

H. *Personal moral norm:*

Personal moral norm was assessed using questions that check if donation of blood with out remuneration or to strangers is a normal behavior that is expected from the subjects. About 83% of the respondents had personal moral norm favoring blood donation with significant statistical association ($P=0.000$, $OR=6.64(3.57, 12.35)$). About 43% of the respondents said they

strongly felt obliged to accomplish the above behavior (higher personal moral norm) and 45.33 percent had a moderate feeling (moderate personal moral norm) to accomplish the above behaviors. Personal moral norm has also been found associated with willingness to VNRBDP. Moderate personal norm has been seen to be associated with willingness to VNRBDP ($P=0.000$, $OR=14.23(6.97, 29.05)$ more than higher personal norm ($P=0.000$, $OR=3.97(2.08, 7.56)$)

Personal norm also suffers from the same problem of being endogenous like attitude and self efficacy when regressed on VNRBDP. Hence making generalizations using such statistical evidence will be inappropriate.

I. Qualitative part of the study:

An in-depth interview was conducted with the head, donor management regarding the organizational structure of ERCS and blood bank, how the blood bank plans its activities and how and where it collects the blood. The demand and supply of blood, criteria used to check fitness of donors how they advocate voluntary blood donation and Problems with voluntary blood donations were points that were discussed. The discussion has been summarized below:

The Ethiopian Red Cross Society (ERCS)-National blood transfusion service (NBRS)/ National blood bank has been established nearly 40 years back. Ever since its establishment the blood bank has been supplying safe blood for health institutions that provide blood transfusion service. Though major activities have been limited to metropolitan areas efforts are underway to expand the service to more areas using the 11 branches and many more that are under construction. After 2 years a total of 26 blood banks will be available in the country.

In spite of the fact that the blood bank has mobile teams that collect blood from schools and different governmental and non governmental

organizations on voluntary basis hospital based replacement donation has remained to be the dominant source of blood for transfusion. The safety of blood that is collected from voluntary donors compared to other sources has been well recognized by the blood bank but financial, personnel and logistic limitations have been major set backs to the shift to voluntary donation. 20/25 is an African based initiative that embraces young voluntary blood donors of ages between 18 and 35 and with a promise of donating blood for 20-25 times in 7 years. The contribution of voluntary donation is still far less than expected 22.8% and 31.7% in 2006 and 2007 G.C. respectively in Addis Ababa.

Less than half the national demand of blood is provided by the blood bank. The problem gets worse in emergency situations when hospitals have to treat mass casualties. According to the head, donor management the process of recruitment of voluntary blood donors is not continuous and sustainable. There is no clear strategy in blue print regarding recruiting and retaining voluntary blood donors. Lack of good record keeping can discourage donors since it makes recognition of long time regular blood donors impossible.

"We are treating donors that gave their blood 20 times the same way as we do for the ones that register to donate for the first time when it comes to recognition and incentives....that may not go beyond giving them a pen or an umbrella" Head donor recruiter, ERCS.

The blood bank does not actively form donor groups but ceases the opportunity to use the already formed groups in the community for different purposes. There are about 17 self formed groups of young people that donate blood.

Three focus group discussions were conducted and a total of 22 participants were involved. Participants had donation record of 2-10 times and considered themselves as regular blood donors.

More than half of the participants started blood donation and became regular donors because their friends told them the importance of blood donation. Few of them had access to health institutions to witness the problems of blood shortage. In the quantitative part of this study about 90% of the respondents that said their major decisions in life are influenced by their families that they considered as significant others. The majority of the participants of FGD, however, said their families are against their decisions to donate blood and yet they have maintained their position to donate blood.

“my mother is strongly against my decision to donate blood though I tried my level best to convince her that it doesn't hurt me...now what I do is I donate blood but don't let my mother know about it” 22 year old female participant.

They, however, noted they can influence their friends to make a decision to become blood donors. Some of the participants in the focus group of A.A.U. admitted that they started donating blood without knowing the importance only because their friends did it. All of them agreed the number of regular blood donors and the blood collected by the blood bank is far below that is required. They blamed inadequate awareness creation and promotional activity by the blood bank as a cause for the shortage of blood.

Participants had differing views regarding the role of incentives in encouraging blood donors. Majority of them, however, thought non monetary incentives like recognition, media acknowledgement, certificates and other prizes are good to encourage donors. Most of them saw lack of

awareness as a cause for exaggerated fear of donating blood, exposure of known disease and diagnosis of unknown disease including HIV, fear of injections and other fears that inhibit blood donation.

Nearly all of them believed advertisements are either inadequate or less appropriate. Some participants agreed that people can mistrust the bank because ERCS or blood bank is not actively addressing the issue of mistrust. A 21 year old regular blood donor admitted that he, some times, thinks the blood he donates is not given for the needy as he put it *“Some times I think I should give my blood only when requested by the needy not to the blood bank because I see people not getting blood in hospital after I donated blood”*

Many of them acknowledged that they had suspicion themselves that blood collected from voluntary donors can be sold or given to specific groups of the community rather than the needy. It was evident that FGD participants had favorable attitude towards blood donation. One of the participants put attitude as a major dividing line between blood donors and non donors

“To me, willingness to be a voluntary blood donor is a matter of attitude towards helping people. That is the major dividing line between us (blood donors) and non donors that is where one needs to focus to address the shortage of blood donors”
25 years old intern at Black Lion Hospital.

VII. DISCUSSION

The finding that males are more willing to voluntarily donate blood that has been seen in this study is compatible with findings of other studies about socio-demographic characteristics of blood donors. [9, 33]. This might be because males feel more “fit to donate” about themselves than females do. Though this is an area for future exploration targeting females on advertisements to encourage them to donate is advised. Even though there are no standard knowledge assessment tools regarding blood donation 99% awareness rate and satisfactory level of response for general knowledge questions regarding blood donation indicates that future intervention needs to be focused more on other constructs. More important, the positive association between ones perceived knowledge and willingness to voluntarily donate blood signifies that it is not the depth of ones knowledge rather it is ones perception about their knowledge that is more vital for the blood donation behavior. Besides, the finding on the qualitative study that blood donors can start donation and remain regular blood donors with social/peer pressure than with actual knowledge about blood donation will narrow the focus of intervention on the major constructs of blood donation behavior that are seen on the theory of planned behavior like self efficacy than enhancing knowledge about the blood donation practice.

The prevalence of past blood donation practice and regular blood donation practice (10% and 1% respectively) are relatively very small when compared to willingness to voluntarily donate blood (70%). The gap between willingness to voluntarily blood donate blood and the actual behavior of blood donation can not be fully explained by the model of the theory of planned behavior since the intention is demonstrated to directly result in the behavior without other factors. But two possible explanations

for this discrepancy are the blood bank's limited effort to collect blood from the voluntary donors and social desirability bias since subjects might have the tendency to give a response that they think "pleases" the investigator. Other models can also come up with factors that predict additional factors that lead to actual behavior of blood donation once subjects have the intention to donate blood.

Remuneration with money was seen to discourage voluntary non remunerated blood donors that was evidenced by the higher proportion of subjects that said they were willing to donate blood voluntarily but were not willing to do so if they were paid. This helps to organize large group of reliable and safe blood donors without much expense for monetary remuneration. Giving incentives like recognition with certificates and other prizes and some reminders that they belong to a group of "life saviors" have been seen in the qualitative part of this study. Giving health education, undergoing some medical examination and investigations for voluntarily donors have also been suggested to enhance voluntary blood donation.

Sense of self efficacy has been known for long to make significant difference on how people think, feel and act on diverse range of human behaviors [18, 19, 23]. In this study self efficacy was assessed using questions that assess ones fitness to donate blood and other factors such as weight, fear of injection, fear of seeing blood, fear of loosing consciousness, fear of being diagnosed to have a disease were investigated. Statistically significant association of ones perception of "fitness to donate blood" with voluntary blood donation, though it is inappropriate to use the statistical test, on top of the finding of the qualitative study that suggests the importance of self efficacy is worth considering. Contrary to the conventional wisdom, fear of injection, fear of

seeing blood, fear of losing consciousness and fear of anemia were not found to be associated with VNRBDP. These might have been taken as less important reasons by subjects to or not to donate blood when compared with “overall fitness” to donate blood or perception about one's weight. FGD participants, however, emphasized the inhibitory effect of fear of injection on willingness to be a blood donor referring to their own experience in overcoming this fear. Another study has identified similar inhibitory effect of fear of injection on blood donation specifically on first time blood donors [19]. Hence addressing the issues of such fears of blood donation process is justified while recruiting blood donors. The suggestions by Armitage and Conner who had done extensive research on this area are worth considering here.

.....increasing non donors' and donors' perceived abilities to cope with the stresses of donation prior to blood donation may, as with occupational career self efficacy, motivate individuals to respond to future recruitment drives.

Several researches have already implied that self efficacy is an important construct of the theory of planned behavior in prediction of blood donation behavior and is amenable to targeted interventions. In one study self efficacy has been found to explain 76% of the variance in blood donation intention [27].

Similar to the finding regarding the assessed knowledge and perceived knowledge weight was not seen to be associated with willingness to VNRBDP rather the perception of one's adequacy of weight was. This can be addressed in the interventions that enhance self efficacy.

Attitude and personal norm have also been seen to be important determinants among the constructs of the theory of planned behavior at least in the qualitative part of this study despite the major limitation of multiple logistic regression test to identify associations between such inherently similar variables. The importance of attitude as a determinant

has been clearly put by an FGD participant as *“To me, willingness to be a voluntary blood donor is a matter of attitude towards helping people. That is the major dividing line between us (blood donors) and non donors that is where one needs to focus to address the shortage of blood donors”* 25 years old intern at Black Lion Hospital.

Despite the limitation of the statistical test to examine the strength of association of willingness to VNRBDP with attitude or personal norm the strong association obtained together with the positive findings about the relationship of personal moral norm with willingness to VNRBDP signals that approaches of potential donors in their naturally formed social groups or organizing first time donors into similar groups that can exert social/peer pressure and model their personal norm regarding blood donation. The effect of social pressure in initiating blood donation behavior and maintaining the practice as regular blood donors has been noticed in the focus group discussions.

Mistrust in the blood bank/ERCS was not found to be associated with willingness to VNRBDP. Yet, the fact that it has bothered even regular donors and it was seen among 28% of the respondents that were not willing to VNRBDP necessitates the need for addressing this problem.

VIII. STRENGTHS AND LIMITATIONS OF THIS STUDY

A. Strength of the study

- v It touched an area that has been abandoned for long time (No previous research was found on this area).
- v Conducted at the time of significant expansion of health institution that are supposed to do surgical and gynecological procedures that will inevitably increase the demand for safe blood.
- v Used a known psychological correlate/TPB/ that has been tested to predict blood donation intention and behavior.
- v Use of suitable mix of quantitative and qualitative approach.
- v Good response rate and use of the Red Cross clubs of schools that are involved in the issue.
- v Good representation of schools in A.A.
- v Study subjects were potential donors for a very long time in the future seeing their young age and willingness.

B. Limitation of the study

- . Even though researches in other countries have demonstrated the effectiveness of TPB in voluntary blood donation behavior this was not attested to be the case in our setting.
- . Lack of previous researches on blood donation in Ethiopia that give base line information in areas crucial to this study has compelled the investigator to use some assumptions while planning this research and, after conducting the study comparison of important findings was impossible at national level.
- . Use of multiple logistic regression/bivariate logistic regression test to see association between some of the variables like attitude, personal norm, self efficacy and willingness to VNRBDP.
- v Because of the cross sectional nature of this study, it could not go beyond willingness to VNRBDP and did not see what determines the actual behavior of blood donation which could have been more pertinent for intervention and can be obtained from longitudinal studies.

IX. CONCLUSION

To conclude, this study has come up with evidences that demonstrate the importance of the theory of planned behavior in predicting willingness to voluntarily donate blood and could suggest several practical recommendations as to how the donor recruitment should be tailored. Using the constructs of TPB that were seen to be associated with willingness to VNRBDP such as attitude, personal norm, self efficacy, perceived knowledge in addressing the problem of shortage of safe blood will be effective.

Determinants identified in this study were sex, perceived knowledge, perceived weight, self efficacy, attitude and personal moral norm.

X. RECOMMENDATION

v To ERCS/Blood bank

- o Increasing effort to collect blood can achieve better amount of donated blood since there is a very big gap between the prevalence of willingness to donate blood and with the prevalence of actual donation or regular donors.
- o More promotional and public relation activities are needed to heighten the current level of blood donors.
- o Advocacy to enhance blood donation will be effective if it uses the constructs of the theory of planned behavior with more emphasis on self efficacy, attitude and personal moral norm.
- o Helping potential donors cope with stresses related to fear of injection, fear of losing consciousness, seeing blood and mistrust in the blood bank/ECRC should be specifically addressed in the promotional activities or awareness creation.
- o Use of non monetary incentives has been seen to affect people's decision to become blood donor and maintain donation as regular donors. Hence, recognition with certificates and other prizes at least for regular donors should be implemented.
- o Organizing donors in to groups that can have social pressure/peer pressure helps to maintain first time blood donors and recruiting already formed social groups is of paramount importance.

v To individuals/organizations interested in conducting research related to blood donation.

- o Additional researches testing the theory of planned behavior comparing with other related theories are important.
- o Addressing the reason for the discrepancy between the very high rate of willingness to voluntarily donate blood and the actual blood donation or the very low number of regular blood donors and how the promotional activities should be tailored.

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XII. ANNEXES

A. Structured Anonymous Questionnaire

Addis Ababa University

Faculty of Medicine

School of Public Health

Questionnaire on

Determinants of willingness to voluntarily donate blood among high school students in Addis Ababa in the academic year 2007/2008

01. Name of School_____

02. Code of data collector_____

03. Questionnaire Identification Number_____

Introduction:

Dear Student,

This questionnaire is intended to collect information from secondary schools of Addis Ababa on blood donation. The information you provide is very important to understand why students like you donate or don't donate blood. Thus, you are kindly requested to provide us with genuine information. The information you provide will be confidential. You have every right not to be involved in this study or to discontinue completing this questionnaire if you decide so.

I hereby verify that I have read and fully understood the above notice and am willing to fill the questionnaire

Yes ☐

No ☐

I confirm that this questionnaire has been filled by a voluntary student

Data collector's name and signature

Date

Supervisor's name and signature

Date

I. Part I: Socio-demographic/ Socio-economic Factors

Put the mark in the box () next to your choice or write your response in the space provided if it is not in the given choices!!!!

No	Variable / Question	Response
101	Sex	Male ☐ Female ☐
102	Age	Specify _____
103	Religion	Orthodox ☐ Muslim ☐ Catholic ☐ Protestant ☐ Other (Specify) _____
104	Ethnicity	Oromo ☐ Amhara ☐ Tigre ☐ Gurage ☐ Other (Specify) _____
105	Your marital status	Single ☐ Married ☐ Divorced ☐ Widowed ☐ Separated ☐
106	Average monthly income of your family	Specify _____
107	Educational status of your mother (Female Guardian)	Uneducated ☐ Elementary School ☐ Junior/High School ☐ Higher education (12+) ☐
108	Educational status of your father (Male Guardian)	Uneducated ☐ Elementary School ☐ Junior/High School ☐ Higher education (12+) ☐

II. Part II: Blood donation behavior

201	Do you know that people donate their blood to be used by other patients?	Yes ☐ No ☐
202	For what purpose is the blood collected from voluntary donors used? (You can give more than one answers)	For bleeding patients of different cause when requested by doctor ☐ For anemic patients when requested by doctors ☐ For patients to be operated ☐ I don't know the use ☐
203	How do you describe your knowledge about blood donation and the importance of donated blood?	I know nothing about this ☐ I've little knowledge about this ☐ I've enough knowledge about this ☐ I've better knowledge about this ☐ I'm not sure ☐
204	Have you ever donated blood? (If your answer to this question is no please pass to question 205)	Yes ☐ No ☐
205	Why did you donate blood?	My family/relatives/friends or acquaintances needed blood ☐ Because of request from the red cross society ☐ Because I was paid ☐ Other (Specify) _____

206	Have you donated blood more than once?	Yes ☐	No ☐
207	Do you regularly donate blood to the blood bank?	Yes ☐	No ☐
208	Are you willing to donate blood now even if you are not given any thing in return?	Yes ☐	No ☐
209	Are you willing to donate blood if your families/ friends or some body who is very close to you needs it	Yes ☐	No ☐
210	Are you willing to donate blood if you are given some monetary benefit? (if your answer to this question is No please pass to question# 212)	Yes ☐	No ☐
211	Specify the amount of money that you require to donate blood	Specify_____	
212	Do you believe that people will be willing to donate blood if they are given money? (if your answer to this question is No please pass to question# 214)	Yes ☐	No ☐
213	What is the amount of money given to people that you believe is adequate for a single blood donation?	Specify_____	
214	Do you believe other incentives (not money) should be given to voluntary blood donors? (if your answer to this question is No please pass to question #216)	Yes ☐	No ☐
215	The incentives should be	Specify_____	
216	What kind of people should not donate blood?	Specify_____	

III. Part III: Personal moral norm and attitude towards voluntary blood donation

		Strongly Disagree	Disagree	I'm not sure	Agree	Strongly Agree
301	I'm morally obliged to donate blood even if I don't know the people who are going to use it					
302	I'm morally obliged to donate blood even if I am not remunerated					
303	I can save many people's life if I regularly donate my blood to the blood bank					
304	Every individual who is fit to donate blood should donate blood					
305	It is possible that the					

	blood I donate may not reach to the needy because of the recklessness of the blood bank					
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IV. Part IV: Self Efficacy / PBC/; Subjective Norm and Behavioral Belief on voluntary blood donation

401	Do you think you are fit to donate blood?	Yes ☐ No ☐
402	How much do you weigh?	_____ Kg.
403	What do you think of your weight?	Heavy/obese ☐ Optimal/average ☐ Low/skinny ☐
404	What is the effect of your weight on your decision to donate blood?	I'm not willing to donate blood b/c I'm skinny ☐ My weight has no effect on my decision to donate blood ☐ I want to donate blood and loose weight because I am obese ☐ Other effect ☐
405	Have you got any known illness/ disease? (Eg. Diabetes mellitus, TB etc.) If your answer is no to this question please pass to question #407	Yes ☐ If yes, specify _____ No ☐
406	Do you believe this known illness prevents you from blood donation	Yes ☐ No ☐
407	Do you think you have unknown illness that prevents you from donating blood?	Yes ☐ No ☐
408	Are there people that influence your major decisions in life? (if your answer to this question is No please pass to question #410)	Yes ☐ No ☐
409	Who are the people that influence your decision if you want to be a voluntary blood donor? (you can give more than one answer)	Family ☐ Friends ☐ Relatives ☐ Guardians ☐ Teachers ☐ People of similar religion with me ☐ People of similar ethnic group with me ☐ Specify if other ☐

Only for those who are not willing to donate blood

410. Explain the reason why you are not willing to donate blood?

Indicate with a () sign how much you agree or disagree with the following statements.

		Strongly Disagree	Disagree	I'm not sure	Agree	Strongly Agree
411	I am not willing to donate blood because I am afraid of injections					
412	I am not willing to donate blood because I am afraid of seeing blood					
413	I'm not willing to donate blood b/c I think I will faint if I donate blood					
414	I'm not willing to donate blood because I will have anemia if I donate blood					
415	I'm not willing to donate blood b/c I may be diagnosed to have a disease that I don't previously know (eg. HIV/AIDS)					
416	I'm not willing to donate blood because I believe that my donation of blood doesn't bring about any difference					
417	I'm not willing to donate blood b/c it is possible that the blood I donate may not reach to the needy because of the recklessness of the blood bank					

Thank you so much for your cooperation in filling this questionnaire!!!

/

01. / _____

02. _____

03. _____

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25-30

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/ /

☐ / ☐

_____ Data _____

I- _____

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/ /

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10 2		_____
10 3		☐ ☐ () _____
10 4		☐ ☐ ☐ () _____
10 5	/	/ ☐ / ☐ / ☐ / ☐
10 6	/	() _____
	()	
10 7	/	☐ 7 -12 ☐
	/)	1 -6 ☐ 2 ☐
10 8	/	☐ 7 -12 ☐
	/) (	1 -6 ☐ 2 ☐

II -

.		
20 1	/ ?	☐ ☐
20 2	()?	() ☐ ☐ ☐
20 3	?	☐ ☐ ☐ ☐ ☐
20 4	/ / ? (208 /)	☐ ☐ ☐

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20 5	/ ?	/ / ☐ () ☐

206	/ ?	☐ ☐
207	/ / ?	☐ ☐
208	/ / ?	☐ ☐
209	/ / / ?	☐ ☐
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212	(/ / ? 211 / /)	☐ ☐
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215	?	
216	?	

III- / (Attitude & Personal Moral Norm)

/ /

(√)

301						
302						

303						
304						
305						

IV- /

(Self Efficacy/Perceived Behavioral Control-PBC/; Subjective Norm and Behavioral Belief on Voluntary Blood Donation Behavior)

401	/ / ?	☐	☐
402	/ ? ()	_____	
403	?	() () ()	☐ ☐ ☐
404	/ / ?	☐ ☐	☐
405	() / ? (- : .) (/ 407 /)	☐ ☐ ☐	_____
406	() / ?		
407	/	☐	☐
408	/ / ? (/ / ? 410 /)	☐	☐
409	? ()	☐ ☐ ☐	☐ (☐) () ☐

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410.

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41 1						
41 2						
41 3						
41 4						
41 5	(- HIV)					
41 6						
41 7						

/

!!!

 Points of discussions at the FGD

- v Reason for being regular donor, what initiated them to be regular donor.
- v The effect/influence of significant others (subjective norm) on the decision to be a blood donor/ regular blood donor. Who are the significant others? How did they affect the decision on blood donation behavior?
- v How can regular donors influence their families, relatives, friends to be donors/regular donors?
- v Did they think there were adequate regular blood donors in the country? What should have been done to increase the number of regular blood donors?
- v The impacts of HIV tests on blood donation
- v The impacts of people's perception of their weight, amount of the blood they had, required to donate at once; Fear of injection? Seeing blood?
- v Effect of giving incentives or payment to encourage blood donation.
- v Effectiveness of advertisements regarding blood donation. (Were you influenced by advertisements?)
- v Their attitude/ the community's attitude towards the blood bank/ red cross society.

- / Points of Discussions at the Focus Group Discussion /

- ◆ / / ?
- ◆ / / / / / /
- ◆ ? ? ?
- ◆ / / / / / ?
- ◆ / / / / ?
- ◆ HIV ?
- ◆ ?
- ◆ / / / /
- ◆ / / ? / / ?
- ◆ / / ?
- ◆ / ?

DECLARATION

I, the undersigned, declare that this thesis is my original work, has never been presented in any other University and that all resources of Materials have been duly acknowledged.

Name Daniel Negash, MD

Signature

Place Addis Ababa

Date of submission July 2008

This thesis has been submitted for examination with my approval as a University advisor.

Name Dr. Damen H/Mariam

Signature
