

## Assessment of Knowledge, Attitude and Practice of Voluntary Blood Donation and Associated Factors among Residents of Birbir Town

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### Abstract

Blood transfusion is a medical procedure that is designed to provide patients who need blood or blood products to correct a defect. Secure supply of safe blood components, based on voluntary, non-remunerated blood donation is an important national goal to prevent blood shortages. Now a day, in many low and middle income countries, blood supply is critically inadequate. Therefore, the objective of this study was to assess knowledge, attitude, and practice of voluntary blood donation and associated factors among adults of Birbir town. Community based cross sectional study design was employed among residents of Birbir town with 387 samples from July 1 to July 30, 2016. After proportional allocation to size to each of 4 villages, systematic sampling method was used to select households. Data was collected from all villages by investigators using standard questionnaire. Finally data was entered and analyzed using SPSS version 20 software. About 144(38.3%), 170(45.2%) and 40(10.6%) of respondents have adequate knowledge, favorable attitude and donated blood respectively. Educational status and occupation were determinants of knowledge, age and knowledge were determinants of attitude and attitude was the only determinant of practice of voluntary blood donation. This study revealed that the prevalence of knowledge, attitude and practice of voluntary blood donation is low. There is a need to design and implement awareness creation program on blood donation. Offices of blood banks in the country, health offices and other stake holders should organize educational campaigns to build community awareness, positive attitude and boost voluntary blood donation among the communities.

**Keywords:** Knowledge; Attitude; Practice; Voluntary blood donation; Birbir; Southern Ethiopia; Factors

### Introduction

Blood is a specialized body fluid in humans that delivers necessary substances such as nutrients and oxygen to the cells and transports metabolic waste products away from those same cells. Human blood is an element of human life. Blood transfusion is a medical procedure that is designed to provide patients who need blood or blood products to correct a defect. A blood donation occurs when a person voluntarily has blood drawn and used for transfusions and/or made into biopharmaceutical medications by a process called fractionation (separation of whole-blood components). Donation may be of whole-blood, or of specific components directly (the latter called apheresis) [1]. Blood banks often participate in the collection process as well as the procedures that follow it. Blood transfusion is an indispensable component of health care. It contributes to saving millions of lives each year in both routine and emergency situations, permits increasingly complex medical and surgical interventions and improves the quality of life of patients with a variety of acute and chronic conditions [2]. National requirements for blood are determined by the capacity of the country's health care system and its coverage of the population. The demand for blood in a country depends on the population, health care structure, and prevalence of conditions requiring regular transfusions [3]. The donated blood plays an essential role in the management of bleeding during major surgeries, accidents, deliveries, bleeding peptic ulcer, liver diseases, lung diseases, cancers, blood diseases such as hemophilia, severe anemia and Thalassemia, new born baby with

blood diseases, burn etc. [1]. The prospective donor should be in a healthy state of mind and body. In the past one year he/she should not been treated for Rabies or received Hepatitis B immune globulin, similarly in the past six months he/she should not have had a tattoo, ear or skin piercing or acupuncture carried on him/her, not received blood or blood products, had no serious illness or major surgery, and not had contact with a person with hepatitis or jaundice. The prospective donor should in the past three months not donated blood or been treated for Malaria, and not had taken any immunizations in the preceding one month. In addition, in the past 48 hours he/she should not have taken any antibiotics or any other medications, and not taken an alcoholic beverage in the past 24 hours. On the day of donation, he/she should not have a cough, influenza or sore throat, or common cold. Prospective female should not be pregnant or breast feeding. Prospective donors should not have a history of Diabetes, chest pain, heart disease or high BP, cancer, blood clotting problems or blood disease, or unexplained fever [4]. The eligible age range to donate blood is 18 years to 65 years and a weight greater than or equal to 45 kg. The amount of blood collected in a single donation ranges between 350 ml to 450 ml. The other eligibilities for a prospective donor to qualify to donate include hemoglobin of more than or equal to 12 gm/dl for female and 13 gm/dl for male, and a blood pressure of between 100/50-180/100 mmHG. The average time taken for collection of donor blood alone is about 5 to 7 minutes [4,5]. The role of healthy adults in voluntary blood donation is crucial to meet the demand of safe blood. Blood donation does not harm the donor and is safe for the body. In addition blood donation is a social/civic responsibility, as the donated blood will be used to save the lives of others in need. A donor may receive blood transfusion as a patient when a clinical need arises;

so it is said that today's donor may be tomorrow's recipient [4]. The International Federation of Red Cross and Red Crescent Societies (IFRC) 2012 report, indicates that 8 million more donations were recorded in 2011 when compared to 2004 (5), however there is a shortage of active blood donors to meet the increased demands of blood. In order to achieve the Sustainable Development Goals (SDGs) 4 (Reduce child mortality) and 5 (Improve Maternal health), reducing infant mortality & maternal mortality has been identified as the major intervention areas both globally and nationally.

Due to blood loss every day about 800 women and about 15% of child die due to obstetric bleeding and anemia, respectively [5,6]. Despite extensive health promotion to encourage blood donation, however, the donating population has remained consistently low at approximately 3% to 4% of the total population in some developed countries. These low rates of blood donation will likely result in future blood shortages as the demand for blood increases due to an aging population, the emergence of new medical and surgical procedures requiring blood transfusions, and further deferrals of individuals who pose a contamination risk to the blood supply [6]. In the WHO African region, it is estimated that about 8 million units of blood were required in 2006, but only 3.2 million units were collected. The African region frequently experiences man-made and natural disasters that considerably increase the need for blood. Unfortunately, many countries in the region do not collect sufficient blood for their populations. In 2006, WHO estimated that 4.15 donations per 1000 population were recorded in developing countries, in developed countries an average of over 30 donations per 1000 population was reported in the same time [3]. This shows that there is a significant difference in access to safe blood amongst the low- and high-income countries. In Ethiopia, Availability of blood for transfusion is limited, as is voluntary blood donation. Evidence relating to knowledge, attitudes and practices on blood donation among Ethiopians is also scarce. Although the Ethiopian Red Cross Society (ERCS) has been the body/organization that took the lead and initiative in improving blood banking services in the country, blood transfusion services in Ethiopia still rely on family and replacement donors [5]. The WHO supported the restructuring of the blood transfusion services through the establishment of a National Blood Transfusion Service (NBTS) under the FMOH as well as transitioning of services from the ERCS to the FMOH, with a total of 25 blood banks that have been established to cover the transfusion needs of hospitals [6].

This study will find the present situation of knowledge, attitude, practice and associated factors of voluntary blood donation among adults of Birbir Town, Southern Ethiopia.

## Materials and Methods

### Study area and period

This study was conducted in Gamo Gofa Zone, Mirab Abaya District, Birbir town. The town is found at a distance of 465 kilometers south of Addis Ababa, and 204 kms south west of Hawassa the capital city of Southern Ethiopia. It has 4 Ketas, 8 villages, and 2,140 estimated numbers of households and the total population of 8,893; among this 4,468 (50.2%) are males and 4,425(49.8%) are females. The town has one health center, six private clinics, three pharmacy, 1 elementary school, 1 high school, 1 preparatory school, 1 private school (elementary), 1 Technical and Vocational Education and Training (TVET) college, postal services, telecommunication services

and 1 bank (Mirab Abaya Administration Bureau, 2016). The study was conducted from July 1 to July 30, 2016.

### Study population

All adults who live in Birbir Town aged 18-65 years.

### Inclusion criteria

All adults who have lived in Birbir Town for at least 1 year

### Exclusion criteria

- Individuals of age less than 18 and above 65 years
- Sick individuals

### Sample size and sampling techniques

The sample size for this study was calculated using single population proportion formula based on the following Assumptions:  $p=40.4\%$  (adequate knowledge on research conducted on the same topic among Ambo university students, 7 with 95% confidence level and 5% level of precision. So, total of 369 was calculated and by adjusting for 5% non-response rate, final sample size was 387.

After Proportional allocation to size to four villages, sample was drawn from all villages' eligible population in the Kebele. Systematic sampling method was used to select households. To get the individual sample unit at household level, the number of households in the Kebele with adults was divided to sample size which gives the interval  $k=6$ . The first house was selected by lottery method and the data was collected in every 6<sup>th</sup> interval in each village. For households with two or more adults only one individual was selected by lottery method.

### Data collection instrument and procedures

Data was collected using a pre-tested structured questionnaire adapted from literature [7]. It was in English, translated to Amharic and then back to English to check for consistency, and completeness. Then it was collected through a face-to-face interview.

### Data processing and analysis

After checking for completeness and consistency, data was entered in SPSS (IBM 20) and descriptive statistics, bivariate and multivariate analysis were done using binary logistic regressions. In order to identify determinants of dependent variables, the variables with  $P<0.25$  during bivariate analysis were candidate for multivariate analysis and variables with  $P<0.05$  in multivariate analysis were the final determinants of dependent variables. And the degrees of association between dependent and independent variables was assessed using AOR at 95% CI.

### Ethical considerations

Ethical clearance was obtained from the ethical review committee of College of Medicine and Health Sciences, Arba Minch University. A formal letter was given to Birbir town administrative bureau. In addition, informed consent was obtained from study participants to confirm willingness for participation after explaining the objective of the study. And the respondents were notified that they have the right to refuse or terminate at any point of the interview.

## Results

### Socio demographic result

From a total of 387 participants, 376 were interviewed with 97% response rate. The participants were between 18-65 years with a mean age of 32 years. Of the total participants, 213(56.6%) were males. The respondents predominantly were between the ages of 18 to 22:- 83(22.1%). Regarding marital status of participants, 243(64.6%) was married. Of the total respondents interviewed, 205 (54.5%) were Protestant. Regarding occupation, 85(22.6%) were merchants and among respondents, 129(34.3%) had attended elementary school. The monthly income of 174(43.9%) of the respondents were between 501-100 ETB (Table 1).

| Variable           |                          | Frequency | Percent (%) |
|--------------------|--------------------------|-----------|-------------|
| Age                | 18-22                    | 83        | 22.1        |
|                    | 23-27                    | 63        | 16.8        |
|                    | 28-32                    | 70        | 18.6        |
|                    | 33-37                    | 52        | 13.8        |
|                    | 38-42                    | 55        | 14.6        |
|                    | 43-47                    | 29        | 7.7         |
|                    | 48-52                    | 10        | 2.7         |
|                    | 53-57                    | 8         | 2.1         |
| Sex                | Male                     | 213       | 56.6        |
|                    | Female                   | 163       | 43.4        |
| Marital status     | Married                  | 243       | 64.6        |
|                    | Single                   | 117       | 31.1        |
|                    | Divorced                 | 8         | 2.1         |
|                    | Widowed                  | 8         | 2.1         |
| Educational status | Unable to read and write | 11        | 2.9         |
|                    | able to read and write   | 45        | 12          |
|                    | 1-8 grade                | 129       | 34.3        |
|                    | 9-12 grade               | 102       | 27.1        |
|                    | 12+                      | 89        | 23.7        |
| Religion           | Protestant               | 205       | 54.5        |
|                    | Orthodox                 | 140       | 37.2        |
|                    | Muslim                   | 17        | 4.5         |
|                    | Others                   | 14        | 3.7         |
| Ethnicity          | Gamo                     | 240       | 63.8        |
|                    | Wolaita                  | 103       | 27.4        |
|                    | Gofa                     | 21        | 5.6         |

|                |                     |     |      |
|----------------|---------------------|-----|------|
|                | Others              | 12  | 3.2  |
| Occupation     | Government employee | 73  | 19.4 |
|                | Merchants           | 85  | 22.6 |
|                | Farmers             | 55  | 14.6 |
|                | House wife          | 69  | 18.4 |
|                | Students            | 84  | 22.3 |
|                | Others              | 10  | 2.7  |
| Monthly income | 0-500               | 174 | 46.3 |
|                | 501-1000            | 38  | 10.1 |
|                | 1001-1500           | 21  | 5.6  |
|                | 1501-2000           | 34  | 9.0  |
|                | 2000+               | 109 | 29.0 |

**Table 1:** Socio demographic characteristics of Birbir town residents, 2016.

### Knowledge on voluntary blood donation

Of total participants, only 47(12.5%) know their own blood group. Of these, 17(36.6%) were blood group O+. About 181(45.7%) responded that a person can be infected during blood transfusion. Of respondents, 295(78.5%) know that HIV can be transmitted through blood transfusion, about 81(21.5%) were not aware about HIV transmission through blood donation. One fourth (25%) of the respondents totally 94 were aware about transmission of hepatitis virus (HCV) through blood transfusion. More than two-third of the respondents i.e. 271(68.4%) were not aware about transmission of malaria through blood transfusion and 236(62.8%) were not aware about transmission of other STIs (Syphilis/Gonorrhea) through blood transfusion. 271(72.1%) of the respondents did not know how often an individual can donate blood. When asked about who should donate blood, 247(65.7%) responded it should be a male individual (Table 2).

| Variables                         |     | Frequency | Percentage (%) |
|-----------------------------------|-----|-----------|----------------|
| How many blood types do you know? | 1   | 20        | 5.3            |
|                                   | 2   | 103       | 27.4           |
|                                   | 3   | 49        | 13.0           |
|                                   | 4   | 204       | 54.3           |
| Do you know your blood group?     | Yes | 47        | 12.5           |
|                                   | No  | 329       | 87.5           |
| If yes what is your blood group?  | A+  | 8         | 17             |
|                                   | A-  | 3         | 6.4            |
|                                   | B+  | 6         | 12.8           |
|                                   | B-  | 6         | 12.8           |
|                                   | AB  | 5         | 10.6           |

|  |               |     |      |
|--|---------------|-----|------|
|  | O+            | 17  | 36.2 |
|  | O-            | 2   | 4.3  |
| Can a person be infected by receiving blood transfusion? | Yes           | 181 | 48.1 |
|  | No            | 110 | 29.3 |
|  | I don't know  | 85  | 22.6 |
| Can HIV be transmitted through blood transfusion?        | Yes           | 134 | 74.0 |
|  | No            | 47  | 26.0 |
| Can Hepatitis be transmitted through blood transfusion?  | Yes           | 45  | 25   |
|  | No            | 136 | 75   |
| Can other STIs transmitted through blood donation?       | Yes           | 22  | 12   |
|  | No            | 159 | 88   |
| Can malaria be transmitted through blood transfusion?    | Yes           | 40  | 21.8 |
|  | No            | 141 | 78.2 |
| Can other disease be transmitted by blood donation?      | Yes           | 51  | 27.9 |
|  | No            | 130 | 72.1 |
| How often can individual donate?                         | Weekly        | 6   | 1.6  |
|  | Monthly       | 11  | 2.9  |
|  | Three monthly | 105 | 27.9 |
|  | six monthly   | 92  | 24.5 |
|  | Annually      | 47  | 12.5 |
|  | I don't know  | 115 | 30.6 |
| Can males donate blood?                                  | Yes           | 247 | 65.7 |
|  | No            | 129 | 34.3 |

|   |     |     |      |
|---|-----|-----|------|
| Can females donate blood?                         | Yes | 103 | 27.4 |
|   | No  | 273 | 72.6 |
| Can younger individuals (<18 years) donate blood? | Yes | 14  | 3.7  |
|   | No  | 362 | 96.2 |
| Can older individuals (>60 years) donate blood?   | Yes | 54  | 14.4 |
|   | No  | 322 | 85.7 |
| Can vulnerable group donate blood?                | Yes | 17  | 4.5  |
|   | No  | 359 | 95.4 |
| Can healthy individuals donate blood?             | Yes | 374 | 99.5 |
|   | No  | 2   | 0.5  |
| Can diseased individuals donate blood?            | Yes | 3   | 0.8  |
|   | No  | 373 | 99.2 |

**Table 2:** Knowledge on voluntary blood donation among residents of Birbir town, 2016.

Concerning the overall level of knowledge of voluntary blood donation, 144(38.3%) of the respondents have adequate knowledge and the remaining 232(61.7%) have inadequate knowledge.

#### Attitude on voluntary blood donation

Of the total respondents, 334(88.8%) considers blood donation as good, 147(39.1%) said donating for money is the best source of motivation for donation. Of the participants, 237(63%) think there are associated risks during and after blood donation. About 304(80.9%) respondents were of the opinion that the patients' relative should be asked to donate blood. A total of 208(55.3%) respondents will encourage others to donate blood. About 198(52.7%) are volunteers who will want to be reminded or called up on to donate when they are due (Table 3).

| Variables  |                         | Frequency | Percent (%) |
|--|-------------------------|-----------|-------------|
| What is your thinking toward blood donation?                             | Good                    | 334       | 88.8        |
|  | Bad                     | 20        | 5.3         |
|  | no idea                 | 22        | 5.9         |
| Do you think there is an associated risk during and after blood donation | Yes                     | 237       | 63          |
|  | No                      | 90        | 23          |
|  | I don't know            | 49        | 13          |
| Will you donate if called up on or remind to do so?                      | Yes                     | 198       | 52.7        |
|  | No                      | 178       | 47.3        |
| What is the main source for blood donation?                              | donating willingly      | 143       | 38          |
|  | donate to replace blood | 66        | 17.6        |
|  | donate with money       | 147       | 39.1        |
|  | I don't know            | 20        | 5.3         |

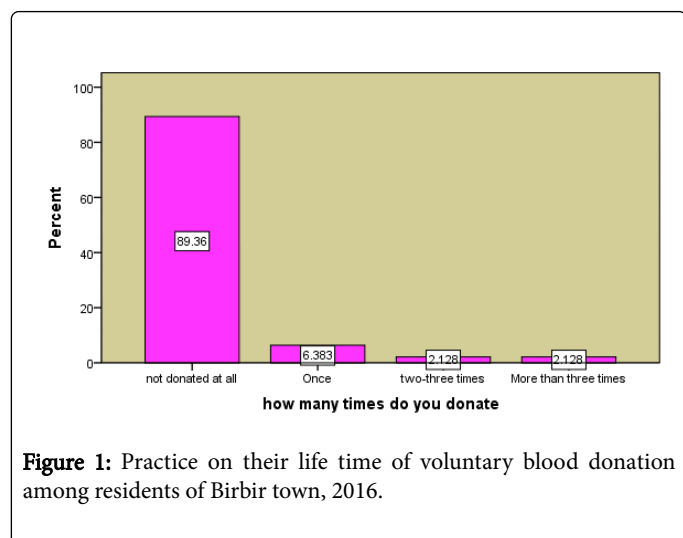
|   |              |     |      |
|---|--------------|-----|------|
| Should patient relative be asked to donate blood? | Yes          | 304 | 80.9 |
|   | No           | 32  | 8.5  |
|   | I don't know | 40  | 10.6 |
| Do you encourage others to donate blood?          | Yes          | 208 | 55.3 |
|   | No           | 168 | 44.7 |

**Table 3:** Attitude towards voluntary blood donation among residents of Birbir town, 2016.

In the study, 206(54.8%) of respondents have unfavorable attitude and 170(45.2%) have positive attitude towards voluntary blood donation.

### Practices on voluntary blood donation

Concerning practice, of the total study participants, only 40(10.6%) donated blood. The remaining 336(89.4%) had no practice of blood donation. From those individuals who donated, 24(6.4%) donated once a year and the remaining donated more than once (Figure 1).



### Factors associated with knowledge, attitude and practice of voluntary blood donation

**Factors associated with Knowledge of voluntary blood donation:**  
Further analysis of the factors associated with knowledge of voluntary

| Variables                 | n(%)       | Have knowledge adequate | Crude odds ratio (95% CI) | Adjusted odds ratio (95%CI) |
|---------------------------|------------|-------------------------|---------------------------|-----------------------------|
| <b>Educational status</b> |            |                         |                           |                             |
| Unable to read and write  | 11(2.9%)   | 3(27.3%)                | 0.172(0.042,0.698)        | 0.853(0.168,4.334)          |
| Able to read and write    | 45(12.0%)  | 3(6.7%)                 | 0.033(0.009,0.115)        | 0.080(0.020,0.317)          |
| 1-8 grade                 | 129(34.3%) | 32(24.8%)               | 0.151(0.083,0.276)        | 0.320(0.159,0.642)          |
| 9-12 grade                | 102(27.1%) | 45(44.1%)               | 0.362(0.200,0.656)        | 0.460(0.247,0.856)          |
| 12+ grade                 | 89(23.7%)  | 61(68.5%)               | 1                         | 1                           |

blood donation revealed that educational status and occupation of respondents were independent determinants of Knowledge of voluntary blood donation. While only 6.7% of participants with educational status of being able to read and write have adequate knowledge about voluntary blood donation, 24.8% of 1-8 grade, 44.1% of 9-12 grade and 68.5% of 12 and above have adequate knowledge of voluntary blood donation. Participants with educational status of being able to read and write are less likely to have adequate knowledge about voluntary blood donation than participants with educational status of 12 and above grade (AOR=0.080; 95% CI=0.020, 0.317).

Likewise, the odds of having adequate knowledge about voluntary blood donation for participants with educational status of 1-8 grade is less than participants with educational status of 12 and above (AOR=0.320; 95% CI=0.159, 0.642). And participants with educational status of 9-12 grade are less likely to have adequate knowledge about voluntary blood donation than participants with educational status of 12 and above (AOR=0.460; 95% CI=0.247, 0.856).

The other important determinant factor for knowledge of voluntary blood donation was occupation. While only 8.7% of house wives and only 14.5% of farmers have adequate knowledge about voluntary blood donation, 65.8% of Government employees, 44% of Students, 45.9% of Merchants and 60% of with other occupation have adequate knowledge.

When compared with government employees, students are less likely to have adequate knowledge about voluntary blood donation (AOR=0.514; 95% CI=0.260, 1.013).

Similarly, the odds of having adequate knowledge about voluntary blood donation for merchants (AOR=0.671; 95% CI=0.336, 0.1.343), farmers (AOR=0.231; 95% CI=0.079, 0.678), housewives (AOR=0.098; 95% CI=0.033, 0.295) and with other occupation (AOR=1.464; 95% CI=0.340, 6.316) is less than government employees (Table 4).

| Occupation          |           |           |                    |                    |
|---------------------|-----------|-----------|--------------------|--------------------|
| Government employee | 73(19.4%) | 48(65.8%) | 1                  | 1                  |
| Students            | 84(22.3%) | 37(44.0%) | 0.410(0.215,0.783) | 0.514(0.260,1.013) |
| Merchant            | 85(22.6%) | 39(45.9%) | 0.442(0.232,0.841) | 0.671(0.336,1.343) |
| Farmer              | 55(14.6%) | 8(14.5%)  | 0.089(0.036,0.216) | 0.231(0.079,0.678) |
| House wife          | 69(18.4%) | 6(8.7%)   | 0.050(0.019,0.130) | 0.098(0.033,0.295) |
| Others              | 10(2.7%)  | 6(60.0%)  | 0.781(0.202,3.027) | 1.464(0.340,6.316) |

**Table 4:** Determinants of knowledge on voluntary blood donation among residents of Birbir town, Southern Ethiopia, 2016.

**Factors associated with attitude towards voluntary blood donation:** Analysis on factors associated with attitude towards voluntary blood donation had shown that age and knowledge of respondents were independent determinants of attitude towards voluntary blood donation.

While 51.8% of respondents of age 18-22 have positive knowledge, 63.5% of 23-27, 50% of 28-32, 34.6% of 33-37, 41.8% of 38-42, 24.1% of 43-47, 20% of 48-52, 25% of 53-57 and none of 58-65 years have positive knowledge. Respondents of age 33-37 years are less likely to have positive attitude towards voluntary blood donation than respondents of age 18-22 (AOR=0.450; 95% CI=0.217, 0.935). Similarly the odds of having positive attitude toward voluntary blood donation

for respondents of age 43-47 years is less when compared to respondents of age 18-22 years (AOR=0.318; 95% CI=0.121, 0.835).

The other important determinant factor for attitude towards voluntary blood donation was knowledge of voluntary blood donation of respondents. While 59% of respondents with adequate knowledge of voluntary blood donation have positive attitude towards voluntary blood donation only 36.6% of respondents with inadequate knowledge have it.

Respondents with adequate knowledge of voluntary blood donation have positive attitude 2 times more likely than respondents with inadequate knowledge (AOR=2.153; 95% CI=1.374, 3.375) (Table 5).

| Variables        | n(%)       | Have positive attitude | Crude odds ratio (95% CI) | Adjusted odds ratio (95%CI) |
|------------------|------------|------------------------|---------------------------|-----------------------------|
| <b>Age</b>       |            |                        |                           |                             |
| 18-22            | 83(22.1%)  | 43(51.8%)              | 1                         | 1                           |
| 23-27            | 63(16.8%)  | 40(63.5%)              | 1.618(0.828,3.160)        | 1.349(0.678,2.685)          |
| 28-32            | 70(18.6%)  | 35(50.0%)              | 0.930(0.492,1.758)        | 0.777(0.403,1.498)          |
| 33-37            | 52(13.8%)  | 18(34.6%)              | 0.492(0.241,1.007)        | 0.450(0.217,0.935)          |
| 38-42            | 55(14.6%)  | 23(41.8%)              | 0.669(0.336,1.329)        | 0.647(0.322,1.301)          |
| 43-47            | 29(7.7%)   | 7(24.1%)               | 0.296(0.114,0.768)        | 0.318(0.121,0.835)          |
| 48-52            | 10(2.7%)   | 2(20.0%)               | 0.233(0.047,1.161)        | 0.223(0.044,1.136)          |
| 53-57            | 8(2.1%)    | 2(25.0%)               | 0.310(0.059,1.626)        | 0.348(0.065,1.851)          |
| 58-65            | 6(1.6%)    | 0(0.0%)                | 0                         | 0                           |
| <b>Knowledge</b> |            |                        |                           |                             |
| Inadequate       | 232(61.7%) | 85(36.6%)              | 1                         | 1                           |
| Adequate         | 144(38.3%) | 85(59.0%)              | 2.492(1.627,3.816)        | 2.153(1.374,3.375)          |

**Table 5:** Determinants of attitude towards voluntary blood donation among residents of Birbir town, Southern Ethiopia, 2016.

**Factors associated with practice of voluntary blood donation:** Further analysis on factors associated with practice of voluntary blood donation revealed that attitude towards voluntary blood donation was the only independent determinant of practice of voluntary blood donation. While 16.5% of respondents with positive attitude

voluntarily donated blood only 5.8% of respondents with unfavorable attitude did it. The odds of donating blood voluntarily is 3 times higher for respondents with positive attitude than respondents with unfavorable attitude (AOR=3.188; 95% CI=1.567,6.484) (Table 6).

| Variable             | n(%)        | Voluntarily donated blood | Crude odds ratio (95% CI) | Adjusted odds ratio (95%CI) |
|----------------------|-------------|---------------------------|---------------------------|-----------------------------|
| <b>Attitude</b>      |             |                           |                           |                             |
| Unfavorable attitude | 206(54.8%)  | 12(5.8%)                  | 1                         | 1                           |
| Positive attitude    | 170 (45.2%) | 28(16.5%)                 | 3.188(1.567,6.484)        | 3.188(1.567,6.484)          |

**Table 6:** Determinants of practice on voluntary blood donation among residents of Birbir Town, Southern Ethiopia, 2016.

## Discussion

This community based cross sectional study has investigated the knowledge, attitude and practices and associated factors of voluntary blood donation (VBD) among residents of Mirab Abaya Woreda, Birbir Town.

Accordingly, only 38.3% of the respondents were knowledgeable about voluntary blood donation. This is similar to the finding of the study conducted in Congo where the knowledge of the respondents was 39% [8] and our finding is higher than the finding of the study conducted in Jordan where only 28.6% of participants had adequate knowledge of VBD [9]. This might be because of the year gap between the two studies. Our finding is far lower than the finding of the study conducted in Debre Markos, Northern Ethiopia and Gondar, Northwest Ethiopia, where 56.5% and 56.8% respectively are knowledgeable about blood donation [10,11]. This might be because our study is limited to a small town where as those studies are done in relatively big cities where more educated peoples reside than our study area.

In our study, as the educational status of the respondents increase the more they have knowledge about voluntary blood donation. This is similar to the finding of the study conducted in Barbados where knowledge score of blood donation was higher for those who had achieved a higher education status [12]. This might be because as the educational status of individuals increase obviously the chance of acquiring knowledge about a specific subject will increase.

Even if we don't have similar finding in other studies, the other important determinant for knowledge of voluntary blood donation in our study was occupational status of the respondents. This might be because in the Ethiopian context, the type of occupation is usually related to the education status of an individual.

This study revealed that of the total respondents who participated in the study, only 45.2% had positive attitude towards voluntary blood donation. This finding is lower than the finding of the study done in Debre Markos, Northern Ethiopia where 52.2% of respondents have favorable attitude towards blood donation [10]. This might be attributable to that fact that Debre Markos is a big city and our study area is small town.

In this study, knowledge of the respondents about voluntary blood donation was a determinant factor for positive attitude towards voluntary blood donation.

This is similar to the finding of the study done in Barbados where total knowledge scores of blood donation statistically significantly predicted total attitude scores towards blood donation [12]. The other variable which we couldn't identify in another research finding but also was a determinant of attitude towards voluntary blood donation was

age of respondents. This might be because when the age of individuals increases the experience and exposure to different things will increase and this might have a significant effect on attitude of individuals.

In this study, among the total respondents, only 10.6% had donated blood voluntarily. This finding is almost similar to the finding of the study conducted in Mekelle City where only 12% had history of blood donation [13]. Our finding is higher than the finding of the study conducted in Tanzania where only 3.8% had donated voluntarily [14]. This might be because our study included only urban residents whereas the study in Tanzania had included both urban and rural residents and the time gap between the studies could be also the reason for the difference. Our finding is far below the finding of the study conducted in Barbados where 53% of participants had previously donated blood [12]. This might be because the study in Barbados is nationwide whereas our study is only limited to one small town in Southern Ethiopia. Concerning the determinant factors for voluntary blood donation, in our study, the attitude of respondents for voluntary blood donation was the only determinant variable. This finding is similar to the finding of the study conducted in Barbados where total attitude scores for blood donation predicted total practice scores for blood donation [12].

## Conclusion and Recommendations

This study revealed that the prevalence of knowledge, attitude and practice of voluntary blood donation is found to be low in Birbir Town. Educational status and occupation were determinants of knowledge, age and knowledge were determinants of attitude and attitude was the determinant of practice of voluntary blood donation.

Offices of blood banks in the country, health offices and other stake holders should organize educational campaign to build community awareness, positive attitude and boost voluntary blood donation among the communities.

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