Assessment of factors affecting willingness to blood donation among Hawassa town Population Southern, Ethiopia,2020.

Belete Girma (beletegirma123@gmail.com)
SNNPR Health Bureau https://orcid.org/0000-0003-4714-5365
Hiwot Deneke (hiwotdeneke12@gmail.com)
Hawassa university Comprehensive specialized hospital
Yusuf Ahmed (zakyu44@yahoo.com)
Oromia health bureau

Research Article

Keywords: Blood donation, Practice, Community, Ethiopia

Posted Date: April 6th, 2021

DOI: https://doi.org/10.21203/rs.3.rs-397548/v1

Abstract

Background: Blood donation is a unique act to save the lives of people who face serious surgical and medical conditions. Since the request for blood supply is too high, there is a shortage of blood which causes significant morbidity and mortality. To increase blood supply and maintain adequate quantity of blood, regular and volunteer blood donation practice is needed. Ethiopia is one of the lowest annual donation rates which is 0.8/1000 population. This study assesses factors affecting willingness to donate blood among Hawassa town southern Population.

Objectives: To assess the factors affecting willingness to blood donation among Hawassa town population Southern, Ethiopia.

Methods: Community based cross-sectional study was conducted in Hawassa town in November 2020. A multi-stage sampling procedure was used to select study population. At Stage one, three Kebele are selected from total 32 Kebele, at stage two using systematical sampling method used to draw the total sample size, proportional to the population of each kebele and each study units are selected randomly from Each household. Data was collected using structured interviewer questionnaire. Data entered and analyzed using SPSS version 20.

Result: A total of 633 participants were included in the final analysis (response rate = 100%). Among which 212(33.5%) was Female and 421 (66.5%) were Male. The mean age was 30.95 ±2.0 years. Among the study participants, 490(77.4) are willing to donate blood in the future and 125(22.9%) of them had blood donation practices in the past. The most prominent factors that affect willingness of participant for blood donation was, Unfit to donate, fear of needle prick and Not approached to donate (45.2%,38.5% and 11.7%) respectively. Majority of the respondents 382 (60.3%) reported that voluntary donor is the best source of safe blood. Desire to help other and age of study Participant age greater 25 years are significantly associated factor for increased willingness to blood donation (AOR 2.146 (0.028, 0.753) and (AOR = 1.8 (95% CI 1.1, 3.0) respectively.

Conclusion: Only minor proportion of the participants donate blood in the past, but Majority of the participant was willing to donate blood in the future. The major factors that participant not willing to donate blood are Unfit to donate, fear of needle prick and Not approached to donate. There is a need to improve awareness on who and when a person able to donate a blood and organizing campaign to increase awareness on important of blood donation for those who are willing to donate blood in the future, to create a pool of eligible blood donors.

Background

Blood is an essential element of human life and there are no substitutes for it (2). World Health Organization (WHO) proposes countries to focus on young people to achieve 100% non-remunerated voluntary blood donation by 2020 Dhingra (1). Donated blood can be life saving for individuals who have lost large volumes of blood from serious accidents, obstetric and gynecological hemorrhages, or surgery and stem cell transplant patients. as well as for individuals who have symptomatic anemia from medical or hematologic conditions or cancers. Therefore, blood is an important concern to the society. The use of these lifesaving products may be complicated by infectious and immunological diseases some of which could be life threatening (3). The blood donation is the only source of blood, but the recruitment of voluntary, non-remunerated donors is the most important challenge throughout the world (4). Blood is the heart of life and is one of the most precious donations. Blood services are facing shortage of blood all over the world. Demand for blood is rising worryingly and current blood donation is inadequate to meet the demand (5). The only source of blood is by blood donation (6). Universally, 80 million units of blood are donated each year, but only two million units are donated in sub-Saharan Africa where the need is very high (7). In sub-Saharan Africa (SSA), out of the estimated need of 18 million units of safe blood per year, purely about 15% were collected (8). Adequate and safe

blood supply has remained a challenge in developing countries like Ethiopia (9). In Ethiopia, there has been gross inadequacy and in equitability in access to blood.

The national requirement for blood in Ethiopia is between 80,000 and 120,000 units per year but only 43% is collected (10).

Blood banks have a duty to provide adequate and safe blood to the community. Generally, donors are classified as voluntary, family replacement remunerated or paid donors, and autonomous donors. The risk of transfusion transmissible diseases is highest with the use of blood procured from remunerated donors. A person who needs money is more likely to secrete his/her real state of health condition (3, 18). Many studies have been conducted to determine people's knowledge, attitude, and practice of blood donation. However, factors motivating or discouraging about blood donation is still in need of further investigation. Hence, this study was aimed to assess factors and blood donation practices among Hawassa town residents.

Methods

Study design and study setting

Community based cross-sectional study was conducted to assess the factors affecting the willingness to donate blood among adults in Hawassa town on November ,2020. Hawassa town is the capital city of southern nation nationality and people regional state and function as Sidama special zone. It is located 273Km from the capital of Ethiopia, Addis Ababa. According to the 2007 Census conducted by the central statistical agency (CSA) of Ethiopia reports Hawassa town has a total population of 376,539 out of which 187,517 are Male and 189,022 are females. A total of 76,845 Households were counted (8).

Source and study population

All adults aged 18 to 65 years residing in Hawassa town were the source population. Those adults who were selected by multi-stage sampling technique and lived in the study area for at least six months were included. Study participants who had serious illness during the data collection period and unable to hear were excluded from the study.

Sample size determination

The sample size (n) was calculated using formula for single population proportion:

$(n = Z^2.\alpha/2 \times P (1-P))/D^2$

and the following assumptions: -

Since there is no similar *community-based* study on Willingness for non-remunerated blood donations a proportion of 50% were taken to obtain the maximum sample size. 95 % confidence interval,5 % margin of error and 10% added for possible non-response during the actual survey. The total sample size with design effect of 1.5 was multiplied by the sample size calculated. $(n = Z^2.\alpha/2 \times P (1-P))/D^2 = ((1.96)^2. (0.5) (0.5))/(0.05)^2 = 384 + 10\% =$ **633 Subjects**

Sampling techniques

Multi-stage sampling technique was used to recruit the study participants. At stage one, three kebele (the lowest administrative unit in Ethiopia) was selected from the total of 32 kebeles of the town by lottery method. At stage two, systematic random sampling technique was used to select households with proportional allocation to the size of the

kebeles population. Finally, lottery method was employed to select one study participant from households with more than one eligible individual (aged 18–65 years old). The selected houses were identified by the supervisors and data collectors few days before the actual data collection. If someone (study subject) was missed from the household during data collection period, revisit was done and interviewed.

Data collection

A pre-tested and structured Amharic version questionnaire was used to collect the data from study subjects via interviewing. The questionnaire was first prepared in English and then translate into Amharic and back to English by different individuals to check consistency and conceptual similarity among the survey teams. The questionnaire was pre-tested (with 10% of the sample size) before actual data collection in an area not included in the research.

Data quality control

To ensure the quality of data, two well-trained degree level supervisors were assigned to assist the data collectors. The investigator direct and monitors the whole data collection processes for consistency, completeness, and accuracy. Training of data collectors and supervisor, daily data checkup for completeness, and use of pretested tool were some of the quality assurance measures employed.

Data processing and analysis

The collected data were entered and analyzed using SPSS version 20. Binary logistic regression analysis was used to see the relationship between variables. Descriptive statistics was show results Crude and adjusted odds ratio with 95 % confidence interval was calculated to assess the association between the dependent and independent variables. The level of statistical significance and final decision was determined based on a p value of less than 0.05, AOR at 95% confidence level.

Result

Socio-demographic characteristics of the respondents

A total of 633 participant were sampled and all are interviewed. From The total study participant 347 respondents are age greater than 25 years (mean age was 30.95 ± 2.0 years). Four hundred sixty-seven (73.8%) are married. Five hundred one (79.1%) of Respondents are educated (more than High school Education). Three hundred seventy-six 376 (60%) of the study participants were Orthodox religion followers, four hundred thirty-seven 437(69%) were government employee and one hundred forty-Eight 148 (23.4%) were Sidama in ethnicity (**table 1**).

Blood donation practices among study participants

In this study 633 respondents were responding for question to toward the willingness to donate blood, 77.4% are willing to donate blood Voluntarily in near future and the remaining 22.9% of respondent have at least one time life blood donation experiences.

Reasons for willing to donate blood. -

Most of the respondents were motivated or willing to donate blood for the reason of desire to help other, especially when a recipient is family members 513(81%), considering that blood donation is lifesaving practices 82(13%) and

some of the participant need Momentary gain items 26(4.1%) such as, refreshments, recognition badges, certificates, and clothes (**Table II).**

Reasons for non-willing to donate blood.

The most commonly affecting factors for not willing to donate blood are Unfit to donate, fear of needle prick and not approached to donate were the leading factors (45.2%, 38.5% and 11.7%) respectively and Very few people avoid blood donation for lack of time (4.6%) as shown in. (Table III)

Table-1: Socio-demographic characteristics of the participants (**n=633**), Hawassa town, Ethiopia 2020.

Variables	Frequency	Percentage
Age (in years)		
<25	286	45.18
>25	347	54.82
Sex		
Female	212	33.5
Male	421	66.5
Marital Status		
Married	467	73.8
Not Married	166	26.2
Education		
Educated	501	79.1
Non-Educated	132	20.9
Religion		
Orthodox	376	59.4
Protestant	143	22.6
Muslim	81	12.8
Catholic	33	5.2
Occupation		
Merchant	155	24.5
Daily Laborer	41	6.5
Government Employee	437	69.0
Ethnicity		
Sidama	148	23.4
Oromo	130	20.5
Gedo	48	7.6
Tigre	77	12.2
Amhara	113	17.9
Gurage	32	5.1
Silte	14	2.2
Wolyita	65	10.9

Table 2: Reason to donate blood (n=633), Hawassa Ethiopia 2020.

Reason for donating	Frequency	Percentage
Desire to help other	513	81
Its Good Practices	12	1.9
Momentary Gain	26	4.1
Its Life Saving	82	13

Table 3: Reason for not donating blood (n=633), Hawassa Ethiopia 2020.

Reason not donating	Frequency	Percentage
Not approached to donate	74	11.7
Unfit to Donate	286	45.2
Fear of Needle	244	38.5
Lack of Time to Donate	29	4.6

1.4 Magnitude of blood donation experiences in relation of socio demographic characteristic

VARIABLE	DONATE n (145)	NOT DONATE, n (488)
SEX		
MALE	14	370
FEMALE	10	239
AGE		
<25	6	150
>25	31	446
RELIGION		
ORTHODOX	15	192
PROTESTANT	14	100
MUSLIM	10	150
CATHOLIC	12	140
EDUCATION		
NOT EDUCATED	15	150
EDUCATED	18	450

Table 5: Output of Binary logistic regression analysis (n=633), Hawassa Ethiopia, 2020.

Variables	Willing to donate blood.		COR 95% CI	AOR 95% CI
	No	Yes		

Sex	Male	5	207	1.0	
	Female	3	418	3.37(0.8,14.2) *	0.539(0.05,6.2)
Age	<25	100	205	1.0	
	>25	43	285	6.1(.75,49.89) *	5.18 (0.6,46) **
Marital Status	Not Married	5	161	1.0	
	Married	3	464	4.8(1.14,20.32) *	1.27 (0.1, 15)
Ethnicity	Sidama	1	148	1.0	
	Oromo	0	136	1.7	2.9
	Gedeo	6	48	1.7	1.977
	Tigre	20	77	1.7	1 .731
	Amhara	13	110	.25(0.025,2.41)	0.2(.025, 2.1)
	Wolayita	14	60	0.11(.012,1.002) *	0.307 (0.025 ,3.720)
Perception to Ward Blood donation	Bad	2	16	1.0	
	Good	6	609	12.687(2.375,67.77) *	4.365(0.510, 37.371)
Patient Family Should asked to donate	No	6	570	1.0	
	Yes	2	55	1.289(0.057,1.46) *	0.559 (0.073, 4.284)
Motivating Factors Its life saving		5	77	1.0	
Its good Practices		0	12	9.321	1.977
Momentary Gain		0	26	9.32	1.509
Desire to help other		3	510	1.91(0.021,0.38) *	2.03(0.028, 0.7) **

COR, crude odds ratio, AOR, adjusted odds ratio *P-value < = 0.25, **P-value < 0.05

Discussion

In this study was assessed the willingness of blood donation and associated Factors among Hawassa town population, southern Ethiopia. Accordingly, only 22.9% respondents had ever donated blood in their life. Similarly ,study conducted in Addis Ababa University health science students almost similar 23.5% &24% (19, 18) and this result somewhat lower than with the findings of institution based a cross-sectional study conducted among University of Gondar Hospital, Addis Ababa health Facilities and Saudi Army force hospital is 33.2%,32.6% ,58.2%(12, 14, 15) and this study somewhat higher than studies done in Dhaka in Bangladesh and Nigeria and Madawalabu University

Students Ethiopia, 16%,15.3% and 18.4%, respectively (13, 7, 16).In this study 77.4% of the participant are willing to donate blood in the coming future time. In this study, somewhat higher than study conducted in Nigeria 73%c, this difference may be due the study setting, sample size &differences in study population (17). This study revealed that Age greater than 25 years and Desire to help others, especially family member are Significant predictor variables for willingness to blood donation 54.8% and 81% Similarly, study conducted in Undergraduate Medical Students in Karachi and Nigeria, 55.4% and 88.3% (9, 21) respectively. This similarity may be due to the study participant demographic characteristic condition. This study revealed that reason for willingness to donate blood is helping family members or relatives, considering that its life saving, and very low proportion of the participant motivated by momentary gain (81%,13%& 4.1%) respectively. Again, in this study unfit to donate, fear of needle prick and Not approached to do so are major conditions that respondent not willing to donate blood (45.2%,3.8% &11.7%) respectively (1, 20, 11).

Conclusion

Willingness to donate blood was mostly based on the primordial motivation of helping the patient in need which does not translate to blood donation. There is a need to improve awareness and advocacy on blood donation among Hawassa town population.

Declarations

Competing interests

The authors declare that they have no competing interests. Availability of data and materials Datasets will not be shared to protect the participants' confidentiality.

Authors' contributions: BG-wrote the proposal &drafted the paper, HD-participated in data collection YM- analyzed the data. All authors read and approved the final manuscript.

Thank you for your consideration of this Manuscript.

Acknowledgements: we would like to thank all study participants who participated in this study for their commitment in responding to our interviews.

Ethics approval and consent to participate.

The purposes and the importance of the study were explained by the data facilitator to the study participants and written informed consent was secured from each participant. Confidentiality was maintained at all levels of the study by keeping the data in secure places.

Abbreviations

AOR, Adjusted odds ratio; COR, Crude odds ratio; ERCS, Ethiopian Red Cross Society; MOH, Ministry of Health, NBTS, National blood Transfusion services, WHO, world health Organization, VBD, Voluntary blood Donation, CSA, Central statistical agency, SPSS: statistical package for social sciences.

References

1. Dhingra N. World blood donor day: new blood for the world. World Health Organization. 2013.

2. Devi HS, Laishram J, Shantibala K, Elangbai V. Knowledge, attitude, and practice (KAP) of blood safety and donation. Indian Medical Gazette.2012. p. 1–5.
3. Nwogoh B, Aigberadion U, Nwannadi AI. Knowledge, attitude, and practice of voluntary blood donation among healthcare workers at the University of Benin Teaching Hospital, Benin City, Nigeria. J Blood Transfuse. 2013; 2013:1–6.
4. Baig M, Habib H, Haji AH, Alsharief FT, Noor AM, Makki RG. Knowledge, misconceptions, and motivations towards blood donation among university students in Saudi Arabia. Pak J Med Sci. 2013;29(6):1295–9.
5. Karobi Knowledge attitude and practices of blood donors toward blood donation Postgrad Med Educ Res.2014;48(3)123–7.
6. Manikandan S, Srikumar R, Ruvanthika P. A study on knowledge, attitude, and practice on blood donation among health professional students in Chennai, Tamil Nadu, South India. Int J Sci Res Publ. 2013;3(3):1–4.
7. Salaudeen AG, Odeh E. Knowledge and behavior towards voluntary blood donation among students of a tertiary institution in Nigeria. Niger J Clin Pract. 2011; 14:303–7.
8. Nigatu A, Demissie DB. Knowledge, attitude and practice on voluntary blood donation and associated factors among Ambo University Regular Students, Ambo Town, Ethiopia. J Community Med Health Educ. 2014;4(5):6–6.
9. Renzaho A, Polonsky MJ. The influence of acculturation, medical mistrust, and perceived discrimination on knowledge about blood donation and blood donation status: acculturation and blood donation. Transfusion (Paris). 2013; 53:162S–71S.
10. Mikkelsen N. Donor associations, a key link between donors and blood centers. ISBT Sci Ser 5.N1. 2010; 5:12–6.
11. Timothy Colin Bednall, L. L. (2011). Donating Blood: A Meta-Analytic Review of Self-Reported Motivators and Deterrents. Transfusion medicine reviews.
12. Blood donation practice and its associated factors among health professionals of University of Gondar Hospital, Northwest Ethiopia: a cross sectional study, June 2015.
13. Mirutse G. Fissha G, Alemayehu M, Abebe L, Birhanu Z. Intention to donate blood among the eligible population in Mekelle City, Northern Ethiopia: Using the theory of planned behavior American Journal of Health Research. 2014;2(4):158-63.
14. BANTAYEHU D 2015. *Knowledge, attitude and practice and associated factors of voluntary blood donation among Health care provider in Addis Ababa Health facilities,* Ethiopia, Occupy Med Health staff.
15. DEJEN A 2015. Knowledge, attitude, practice, and associated factors of blood donation among health care workers in Tikur Ambesa Specialized Hospital, Addis Ababa, Ethiopia.
16. Voluntary Blood Donation Practices and Associated Factors among Regular Undergraduate Madawalabu University Students, Southeast Ethiopia: Birhanu Darega1*, Nagasa Dida2, Tamiru Tesfaye1 and Bikila Lencha2 Sep 22, 2015.
17. A cross-sectional survey of the willingness of tertiary hospital staff to donate blood in Sagamu, Nigeria Jiamusi OA1, Ojo OT*2, Adegoke OM2, Alabi AD1, Sholeye OO1, Olatunji 2 vol 2, July-Dec 2016.
18. Dawit malako, Fissehatsion Yosph and Mebratu Legesse Bekele Assessment of KAP and associated factors of blood donation among health care providers in Ethiopia, 2019.
19. MISGANAW C, TENKIR M, DERESEA A, TESFAYE M, TESHOME T & HAWULT T 2014. The level and associated factors of knowledge, attitude, and practice of blood donation among health science students at Addis Ababa University.
20. Ahmed Z, Zafar M, Khan AA, Anjum MU, Siddique MA. Knowledge, attitude, and practices about blood donation among undergraduate medical students in Karachi. J Infect Dis Ther, 2014; 2:134.

21. Blood donation practice and its associated factors among health professionals of University of Gondar Hospital, Northwest Ethiopia: a cross sectional study, June 2015.