FACTORS TOWARDS BLOOD DONATION OF STUDENTS OF BAHIR DAR UNIVERSITY ETHIOPIA

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ABSTRACT

Blood donation is of paramount concern to the society for life saving. The average annual blood collection rates in Ethiopia are extremely low. Out of the 44 WHO African countries, merely 22% of blood was being donated by voluntary blood donors in Ethiopia. To assess the level of knowledge, practice and associated factors towards blood donation among students of Bihar Dar University, North West Ethiopia, institution based cross-sectional study design was used from April 30 to May 15, 2016. A self-administered questionnaire was used to collect data. Out of 814 participants, 809 (99.4%) responded to the questionnaire. About 53.4% of respondents had poor knowledge regarding blood donation, male was 1.42 times more knowledgeable than females, department of medicine 1.93 times more likely good knowledge as compared with other departments and family educational status also significantly associated with knowledge. About 27.9% students donated blood in the age of 19 to 24 years were 2.61 times more likely to donate blood voluntarily than those with age of 25 years and above. Similarly, students whose family residence is rural were 46% less likely to donate blood as compared with those who came from urban areas.

INTRODUCTION

Blood donation is a major concern of the society for lifesaving (Olubiyi, 2014). 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 (Balkees and Abdelrahman, 2014). Out of 108 million blood donations collected annually worldwide, less than half is collected in developing countries (Anyanwu-

Yeiya, 2015). According to WHO, the estimated blood requirement for the Southeast Asian region is about 16 million units per annum, but it collects about 9.4 million units, having a gap of six million units (Gunvanti and Rathod, 2012). Most of the population is eligible for blood donation, yet only a small percentage of eligible population donates in developed countries (WHO, 2014).

Ethiopia is one of the developing countries that had a chronic shortage of blood for donation. There have been gross inadequacy and in-equitability in access to blood that is only 0.3 units/1000 people and of this 70% were collected from Addis Ababa (Bantayehu, 2014; Darega *et al*., 2015). This study was done to study it in Ethiopia.

MATERIALS AND METHODS
Sampling techniques

Institution based cross-sectional study was conducted from April 30 to May 15, 2016.

The sample size was determined by using single population proportion formula considering, the proportion of knowledge we took 40.4% to get a large sample size from a study conducted at Ambo University, Ethiopia. Z=standard normal distribution value at 95% confidence level at $Z\alpha/2=1.96$, with 5% marginal error, and 10 % non response rate. The total sample size needed to conduct the research was 814. The simple random sampling technique was employed.

Data processing

Consistent data were entered into EPI INFO version 7 and transferred into SPSS version 20. Descriptive statistics; frequency tables, graphs, and proportions were computed to describe study participants. Then, binary logistic regression models were fitted to identify independent variables associated with knowledge and practice. Odds ratios (OR) with their 95% confidence interval (CI) were presented and significance was considered at p < 0.05).

Ethical considerations:

Ethical clearance was obtained from ethical review committee of the University of Gondar, School Of Nursing. Letter of permission was taken from Bahir Dar University (BDU) and respective colleges.

RESULTS AND DISCUSSION

Out of 814 participants, 809 responded to the questionnaire giving a response rate of 99.4%. The mean age of the respondents was $21.7 \pm$ SD 2.26 and age range was 18-30, 488 (60.3%) were male, 750 (92.7%) were single, 448(55.8%) were urban, medical students were 209 (25.8%) (Table1). Out of 809 participants, 377(46.6%) had good knowledge towards blood donation, 654 (80.8%) did not know about blood donation site (Table 2).

Out of total, 226 (27.9%) had good practice regarding blood donation, 199 (24.6%) donated voluntarily while 8 (1%) for family replacement. The main reasons for not donating blood by the non-donors were: medically unfit, fear of injection, fear of anemia and counteracting infection (Table 3). The study showed that male was 1.42 times more likely to have good knowledge as compared to female towards blood donation (Table 4). Among the variables, age and residence were statistically significantly associated with practice in multivariate analysis at P<0.05 (Table 5).

This study revealed knowledge was 46.6% which is in line with study in India (46.6%), university campus South India 43.9% and Pondicherry, India (44.8%) (Sabu *et al.*, 2011; Kowsalya, 2013). It was higher than the study done in Ambo, Ethiopia (40.4%), Imphal, India (33.1%) and Chennai, India (35.65%) (Manikandan and Ruvanthika, 2013) but lower than Addis Ababa (83% (Chalachew *et al*., 2014), Puducherry, India (79.5%) (Umakant *et al.*, 2015), Jammu, India (81.57%) (Kumari, 2015). Gender was found to be significant predictor's good level of

knowledge. That is being male participants were 1.46 times more likely to have good knowledge as compared with female participants. This finding is consistent with the study in Karachi (Ahmed *et al.*, 2014) and Saudia Arabia

Table 2: Levels of knowledge towards blood donation in students at Bihar Dar University, Northwest Ethiopia, 2016. (n=814)

Characteristics	Frequency	%
Know of blood Donation		
Yes	703	86.9
No	106	13.1
First source of information		
Television	358	44.3
School/faculty	430	53.2
Health facility	217	26.8
Radio	186	23.0
Magazines	80	9.9
Books	180	22.2
Family members	78	9.6
Friends	121	15.0
Types of blood donors you know		
Voluntary	364	45.0
Family replacement	438	54.1
Renumrated	205	25.3
I don't know	185	22.9
Blood donors		
Voluntary	360	44.5
Family replacement	185	22.9
I don't know	264	32.6

(Alfouzan, 2014). The overall good practice was 27.9% which is higher than in Madawalabu (18.4%) (Darega *et al.*, 2015), In the current study, multivariate logistic regression showed that participants' age and family residence were significantly associated with practice towards blood donation, age between 19-24 years were 2.61 times more likely to have good practice as compared with those 25 and above which is consistent with the study in Ethiopia) and Addis Ababa (Chalachew *et al.*, 2014; Darega *et al.*, 2015).

Table 1. Socio demographic characteristics towards blood donation among Bihar Dar University students, Northwest, Ethiopia, 2016. (n=814).

Variables		%
Age		
<19yr	108	13.3
19-21yr	325	40.2
22-24yr	288	35.6
25-27yr	72	8.9
28-30yr	16	2.0
Sex		
Male	488	60.3
Female	321	39.7
Marital status		
Single	750	92.7
Married	59	7.3
Religion		
Orthodox	608	75.2
Muslim	101	12.5
Protestant	100	12.35
Ethnicity		
Amahra	549	67.9
Oromo	111	13.7
Tigre	81	10.0
Others	68	8.4
Residence		
Rural	361	44.6
Urban	448	55.4
Education		
Not read and write	139	17.2
Read and write	194	24.0
primary school	126	15.6
Secondary school	91	11.2
Diploma	259	332.0

Table 3: Blood donation at Bihar Dar University, Ethiopia, 2016 (n=814)

Characteristics	Frequency	%
Have you ever donated blood		
Yes	207	25.6
No	602	74.4
The types of donation		
Not donated	602	74.4
Voluntary	199	24.6
Family replacement	8	1.0
How many times Donated		
One times	113	14.0
Two times	48	5.90
More than two times	46	5.70
Who was your blood recipient		
Family/relative	43	5.3
Friends	29	3.6
Unknown person	135	16.7
Motivation for blood Donation		
Moral duty	63	7.8
Sense of humanity	52	6.4
Save the others life	92	11.4
feel during/after blood donation		
Feel sick	32	4.0
Temporarily weakness	59	7.3
Nothing happen	116	14.3
last time donated blood		
Less than six month	111	3.7
Less than one year	36	4.4
1-2 year	26	3.2
Three and above year	11	1.4

Characteristics	Frequency	%
Occupation		
Farmer	339	41.9
Daily worker	24	3.0
Merchant	185	22.9
Health personnel	46	5.7
Teachers	95	11.7
Guard	27	3.3
Accountant	59	6.2
Others	34	4.2
Department		
Medicine	209	25.8
BSC Nurse	33	4.07
Biology	20	2.5
Chemistry	24	3.0
Statistics	20	2.5
History & civics	146	18.0
Psychology,edu	104	12.9
Accounting &management	95	11.74
Inform Tech	158	19.5
Year of study		
First year	256	31.6
Second year	170	21
Third year	212	26.2
Fourth year	171	21.1
No response	23	2.8

Table 4: Factors associated with knowledge towards blood donation in Bihar Dar University undergraduate regular students, North West Ethiopia, 2016 (n=814).

Knowledge of blood donation				
Variable	**Good n (%)**	**Poor n (%)**	**COR(95%CI)**	**AOR(95%CI)**
Sex				
Male	240(63.7)	248(57.4)	**1.34(0.98,1.73)***	**1.42(1.05,1.92)****
Female	137(36.3)	184(42.6)	1	1
Year of study				
1	133(35.3)	123(28.5)	1.32(0.89,1.95)	1.45(0.95,2.22)
2	83(22.0)	87(20.1)	1.17(0.76,1.78)	1.22(0.77,1.91)
3	84(22.3)	128(29.9)	0.80(0.53,1.21)	0.84(0.53,2.32)
4 & above	77(20.4)	94(21.8)	1	1
Department				
Medicine	117(31.0)	92(21.3)	**2.13(1.39,3.26)***	**1.93(1.25,2.99)****
BSC nurse	17(4.5)	16(3.7)	1.78(0.84,3.79)	2.05(0.92,0.16)
Biology	8(2.1)	12(2.8)	1.12(0.43,2.89)	1.31(0.48,3.54)
Chemistry	9(2.4)	15(3.5)	1.01(0.42,2.44)	1.13(0.44,2.86)
Statistics	9(2.40	11(2.50	1.37(0.54,3.51)	1.14(0.43,3.03)
Civics & history	70(18.6)	76(17.6)	1.55(0.98,2.44)	1.55(0.94,2.53)
Psycho,adul.edu &journalism	55(14.6)	49(11.3)	1.88(1.14,3.11)	1.80(0.07,3.03)
Management &accounting	33(8.8)	62(14.4)	0.89(0.53,1.52)	0.78(0.45,1.35)
Computer science, engineering & info system, technology	59(15.6)	99(22.9)	1	1
Family education				
Not read and write	50(13.3)	89(20.6)	**0.50(0.31,0.73)***	**0.48(0.27,0.87)****
Read and write	95(25.20	99(22.9)	0.82(0.56,1.18)	0.86(0.51,1.45)
Primary school	55914.60	71(16.4)	0.66(0.43,1.01)	0.67(0.39,1.14)
Secondary school	37(9.8)	54(12.5)	0.58(0.36,0.95)	0.63(0.36,1.11)
Diploma and above	140(37.1)	119(27.5)	1	1
Family occupation				
Farmer	135(35.8)	174(40.3)	1	1

Daily worker	7(1.9)	17(3.9)	0.69(0.35,1.3.9)	0.445(0.17,1.15
Merchant	86(22.8)	109(25.2)	0.37(0.12,1.10)	0.95(0.61,1.49)
Others employers'	130(34.3)	115(26.6)	0.71(0.35,1.44)	1.07(0.65,1.77)
Health personnel	19(5.0)	17(3.9)	1.01(0.50,2.04)	0.95(0.41,2.19)

Note: n=number, * significant associated only bivariate, **significant both bivariate and multivariate p-< 0.05.COR=crude odds ratio**,** AOR=adjusted adds ratio, CI=confidence interval.

Table 5: Factors associated with practice towards blood donation among

Practice of blood donation				
Variable	**Good n(%)**	**Poor (%)**	**COR(95%CI)**	**AOR(95%CI)**
Age				
<19	10(9.3)	98(90.7%)	0.45(0.19,1.06)	0.49(0.20,1.23)
19-24	200(32.6)	414(67.4%)	**2.14(1.22,3.78)***	**2.61(1.42,4.79)**
>25	16(18.4)	71(81.6%)	1	1
Family residence				
Rural	79(23.0%)	264(77.0%)	**0.65(0.47,0.89)***	**0.54(0.36,0.79)**
Urban	147(31.5)	319(65.5)	1	1
Family education				
Not read and write	35(25.2%)	104(74.8)	0.78(0.49,1.25)	1.48(0.76,2.89)
Read and write	53(27.3)	141(72.7)	0.87(0.58,1.32)	1.49(0.83,2.70)
Primary school	37(29.4)	89(70.6)	0.97(0.61,1.54)	1.44(0.79,2.59)
Secondary school	23(25.3)	68(74.7)	0.97(0.46,1.35)	1.06(0.57,1.99)
Diploma & above	78(30.1)	181(69.9)	1	1
Year of study				
1	65(25.4)	191(74.6)	0.69(0.46,1.07)	0.76(0.48,1.22)
2	51(30.0)	119(70.0)	0.88(0.56,1.39)	0.79(0.49,1.29)
3	54(25.5)	158(74.5)	0.70(0.45,1.09)	0.57(0.36,1.72)
4	56(32.7)	115(67.3)	1	1
Family occupation				
Farmer	79(35.0)	230(39.5)	0.78(0.37,1.66)	0.69(0.27,1.72)
Daily worker	7(3.1)	17(2.9)	0.94(0.30,2.89)	0.68(0.19,2.37)
Merchant	47(20.8)	148(25.4)	0.72(0.33,1.58)	0.53(0.22,1.30
Other employee	82(36.3)	163(28.0)	1.14(0.54,2.43)	1.021(.046,2.26)
Health personnel	11(4.9)	25(4.3)	1	1

Note: n=number, p- 0.40,*significant only bivariate,** significant both bivariate and multivariate at p-<0.05.COR=crude odds ratio**,** AOR=adjusted odds ratio, CI=confidence interval

CONCLUSION

The study showed that the level of knowledge and practices were poor regarding blood donation. Gender, department of medicine and family education were significantly associated with knowledge, age and residence were significantly associated with the practice towards donating blood voluntarily whereas source of information, school/faculty and television was the main source about blood donation on this study.

CONFLICT OF INTEREST

The authors declare that there have no conflicts of interest.

REFERENCES

Olubiyi SK, Omvunjaim BFR (2014). Knowledge, attitudes, and practices of blood donation among adults in Ado-Ekiti, Nigeria. J Medicine Medical Sci. 2: 52 -57.

Gunvanti B, Rathod PP (2012). Comparison regarding knowledge, attitude and practice of blood donation between health professionals and general population. Int J Cur Res Rev. 4:114-120.

Anyanwu-Yeiya CC,SOa KT (2015). Targeting females as voluntary non remunerated donors in developing nations. J Blood Disord Transfus. 4: 2-3.

Balkees H, Abdelrahman MYS (2014). Investigating knowledge and attitudes of blood donors and barriers concerning blood, a donation in Jordan. Social Behavioral Sci. 21: 46 - 54.

Chalachew MMT, Andualem, Deresea, M Tesfalem S, Teshome T, Taye H (2014). The level and associated factors of knowledge, attitude and practice of blood donation among health science students of addis ababa university. Internat J Medical Health Sci Res. 1: 105-118.

Umakant G, Shidam SL, Saurabh S, Roy G (2015). Knowledge and attitude regarding blood donation in rural Puducherry, India. National J Community Medicine. 6: 64-68.

WHO (2014). Facts on blood transfusion. World Health Organization, Geneva.

Darega B, Dida N, TTaL B (2015). Voluntary blood donation practices and associated factors among regular undergraduate Madawalabu university students, southeast Ethiopia: A facility based cross sectional Study. J Blood Disord Transfus. 5: 2-7.

Bantayehu D (2014). Knowledge, attitude, and practice of voluntary blood donation and associated factors among health care providers in Addis Ababa health facilities, Ethiopia. Occupational Medicine Health Affairs. 3: 2-17.

Manikandan RSS, Ruvanthika P N (2013). A study on knowledge, attitude and practice on blood donation among health professional students in Chennai, Tamil Nadu, South India. Internat J Scientific Research Publications. 3: 1- 4.

Sabu KRA, Binu VS, Raghavan V (2011). Knowledge, attitude and

practice on blood donation among health science students in a University campus, South India. Online J Health Allied Sci. 10: 1-3.

Kowsalya VRV, Srikumar R, Reddy E P, Latha S, Fathima LG, Kumar C K (2013). A study on knoweldge, attitude, practice regarding voluntary blood donation among medical students in Pudecgherry, India. Pak J Biol Sci. 16: 439- 42.

Ahmed ZMZ, Khan A A, Anjum M U, Siddique MA (2014). Knowledge, attitude and practices about blood donation among undergaduate medical students in Karachi. J Infect Dis 2: 2-4.

Alfouzan N (2014). Knowledge, attitudes and motivations towards blood donation among King Abdul Aziz medical city population. Internat J Family Medicine.
http://dx.doi.org/10.1155/2014/539670

Kumari STRR (2015). Knowledge, attitude and practices (KAP) regarding voluntary non-remunerated blood donation (VNRBD) among the students of colleges of Jammu, India. Int J Community Med Public Health. 2: 45-50.