

Voluntary Blood Donation, Future Willingness and Associated Factors Among Attendants of Obstetrics and Gynecology Patients in JIMA University Specialized Hospital, Oromia region, Ethiopia, 2015

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Abstract

Background: Hemorrhage is the major cause of maternal death worldwide. This problem is more prevalent in developing countries including Ethiopia. Therefore, availability of adequate blood supply and timely transfusion has paramount importance in reducing maternal deaths. In this aspect, assessing practice, future willingness and associated factors towards voluntary blood donation among attendants can contribute in alleviating the scarcity of blood for transfusion.

Objective: To assess voluntary blood donation, future willingness and associated factors among attendants of obstetrics and gynecology patients in Jima University Specialized Hospital (JUSH).

Methods: A cross-sectional study was conducted among attendants of Obstetrics and Gynecology patients of Jima University Specialized Hospital (JUSH) 2015. The 424 sample size was calculated by using single population proportion formula and systematic sampling technique was applied to select the participants. To get the desired information for the study, semi-structured interview questionnaire was employed. The data was interred using Epi data and analyzed using SPSS version 20. All variables with $P < 0.2$ during bivariate logistic regression analysis were used for multivariate logistic regression analysis. P value < 0.05 was declared as statistically significant. Results were presented using frequency tables, figures and texts.

Results: The study revealed that among 424 obstetrics and gynecology surgical patient attendants, only 85(20%) of them voluntarily donated blood. On the other hand 80(90%) of the already donated attendants and 293(69.1%) of total attendants are willing to further donate blood in the future if asked to do so. Good knowledge (AOR=7.374, 95%CI: 1.671–32.538). Favorable attitude (AOR=3.586, 95%CI: 1.324–9.715). Female sex (AOR=0.570, 95%CI: 0.330–0.988), were significant predictors of voluntary blood donation among attendants.

Conclusion: Even though majority of the study participants have good knowledge and favorable attitude, voluntary blood donation is very low. Knowledge, attitude, age and sex of attendants were important predictors of voluntary blood donation.

Keywords: Voluntary blood donation, blood transfusion, knowledge, attitude, practice, maternal death

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INTRODUCTION

Hemorrhage during labor, delivery and postpartum accounts for one-third of all obstetric deaths in the world and is contributing about 34% and 31% cause of maternal deaths in Africa and Asia

respectively [1–3]. In Sub-Saharan Africa (SSA), where blood supply is critically inadequate, severe hemorrhage is a leading cause of maternal deaths. These maternal deaths from severe bleeding in Sub-Saharan Africa contributed about 50% of global burden

[4, 5]. In Ethiopia, hemorrhage accounts for 15–20% of maternal death and blood transfusion is among the package of interventions recommended for prevention and treatment of postpartum hemorrhage, once bleeding starts and patient is not transfused death can occur as early as two hours. On the other hand in Sub-Saharan Africa, it is estimated that 26% of maternal hemorrhagic deaths are a direct consequence of the lack of blood transfusion services, and globally up to 150,000 pregnancy related deaths could be avoided each year if women had access to safe blood [6, 7]. Therefore, rapid access to adequate and safe supplies of blood for transfusion is absolutely critical to prevent deaths due to obstetric hemorrhage. But only 39% of the world's blood supply is donated in developing countries although they have 82% of the global population. This is only due to estimated 40 million units/year shortfall in blood supply for developing countries [1, 3, 4, 8]. The donation of blood by voluntary non-remunerated blood donors is recognized as being crucial for the safety and sustainability of national blood supplies. In WHO African region, blood requirements were estimated at about 8 million units in 2006, but only 3.2 million units were collected about 41.5% of the demand [9].

The Ethiopian Red Cross Society National Blood Bank Services (ERCS-NBBS), estimated country's blood demand to be 80,000 to 120,000 units per year. It cannot meet this demand at present due to lack of enough regular voluntary blood donors [10]. The Jima branch, which gives services for South Western part of the country mainly through JUSH, has big problem in collecting and providing adequate blood due to scarcity of regular voluntary donors. This has big impact on the effort to reduce maternal mortality in the region. Therefore, assessing practice of voluntary blood donation and future willingness of patient attendants, who are from different parts of the community, may help in identifying some of the barriers on voluntary blood donation. This will help in identifying areas of focus for activities which will be taken during community mobilization for blood donation.

METHODS

Across-sectional study was conducted among obstetrics and Gynecology patient attendants at Jima University Specialized Hospital (JUSH) from June to November 2015. Jima University specialized hospital is found at 357 km Southwest of Addis Ababa in Jima town. It is one of the oldest teaching hospitals in the country and serving as a referral hospital in the South-West Ethiopia. The hospital has two Obstetrics and Gynecology, one MCH clinic, one Gynecologic OPD, one family planning clinic and referral clinics [11]. The study population comprised of all attendants of obstetrics and gynecology patients during the study period. The sample size was calculated using a single population proportion formula assuming 50% of obstetrics and gynecology patients voluntarily donate blood and 5% level of significance ($\alpha = 0.05$). Therefore, after adding 10% for nonresponse rate, the authors had 424 total sample size for the study. Systematic sampling technique was applied to recruit participants of the study. Data was collected by two midwives through face-to-face interviews using a structured and pre-tested questionnaire after one day training was given.

Data was organized using EPI Info and exported to SPSS version 20.0 software packages for analysis. Variables found significant (p -value ≤ 0.2) on bivariate analysis were included in multiple logistic regression analysis to determine the effect of various factors on the outcome variable and to control confounding effect and p -values of less than 0.05 were taken to represent significance. The degree of association between the independent and dependent variables was analyzed using odds ratios with 95% confidence intervals. Ethical clearance was obtained from the Institutional Review Board (IRB) of Jima University, College of Health Sciences. A letter of cooperation was sent to respective wards and written informed consent was obtained from each participants.

RESULTS

Socio-demographic Characteristics

All of the sampled study participants responded to the questionnaire, giving a response rate of 100%. A majority 238(56.1%) of respondents were in the age range of 21-30 years with the mean age of 30.54 and SD of ± 14.99 . From the total respondents more than half, 273(64.4%)

were out of Jimma town. Male is accounted for 257 (60.6%) of the total study participants. Concerning ethnicity of study participants, Oromo comprises 287(67.7%) followed by Amhara 66(15.6%) as in Table 1.

Knowledge on Blood Donation

Generally, 335(79%) of the study participants have good cumulative knowledge on blood donation. Concerning specific components of knowledge on blood donation, 395(93.2%) of the respondents have heard about blood donation or transfusion. Majority of the patient attendants, 370(87.3%) know that source of blood for transfusion is only human being and 390(92%) of respondents have knowledge on blood transfusion saving lives (Table 2). Respondents were asked about medical condition which may needs blood transfusion. More than one-third of the study participants 222 (41.1%) know that blood donation could be required for pregnancy related blood loss and 13(2.4%) do not know any condition in which blood is needed (Figure 1).

Attitude towards Voluntary Blood Donation

Majority of the study participants, 388(91.5%) believe that blood donation and transfusion save lives. But only 320(75.5%) of the study participants had favorable attitude towards blood donation. From the entire study participants 99(23.3%) believe there should be gift or payment for blood donation (Table 3).

Practice of Voluntary Blood Donation and Future Willingness

Among 424 attendants, only 85(20%) of them currently donated blood voluntarily, majority

of the donors 58(68.24%) were for family member. From all attendants (current donors and non-donors) 293 (69.1%) of them are willing to donate blood in the future if asked to do so common reasons listed by respondents who do not voluntarily donated blood, includes not having enough blood for donation, affect once health, farmer cannot donate and to give only for family member.

Factors Affecting Practice of Blood Donation

Bivariate analysis was done to assess any association between individual independent variables and attendant's voluntary blood donation. After controlling the effect of other variables, age, sex knowledge and attitude continued to be significantly associated with voluntary blood donation among attendants (P-values<0.05). Attendants in the age range of 31–40 years are 3 times more likely to donate blood voluntarily when compared to those who are less than 21 years (AOR=3.02, 95%CI= 1.32–4.33). On the other hand being female attendants have decreased odds of voluntary blood donation when compared with male attendants (AOR=0.57, 95% CI: 0.03–0.98). Respondents having good knowledge (AOR=7.37, 95%CI: 1.67–32.54) and favorable attitude towards blood donation (AOR=3.59, 95%CI: 1.32–9.72) have 7.37 times and 3.59 times more likely to have practice of blood donation when compared with those having poor knowledge level and unfavorable attitude respectively (Table 4).

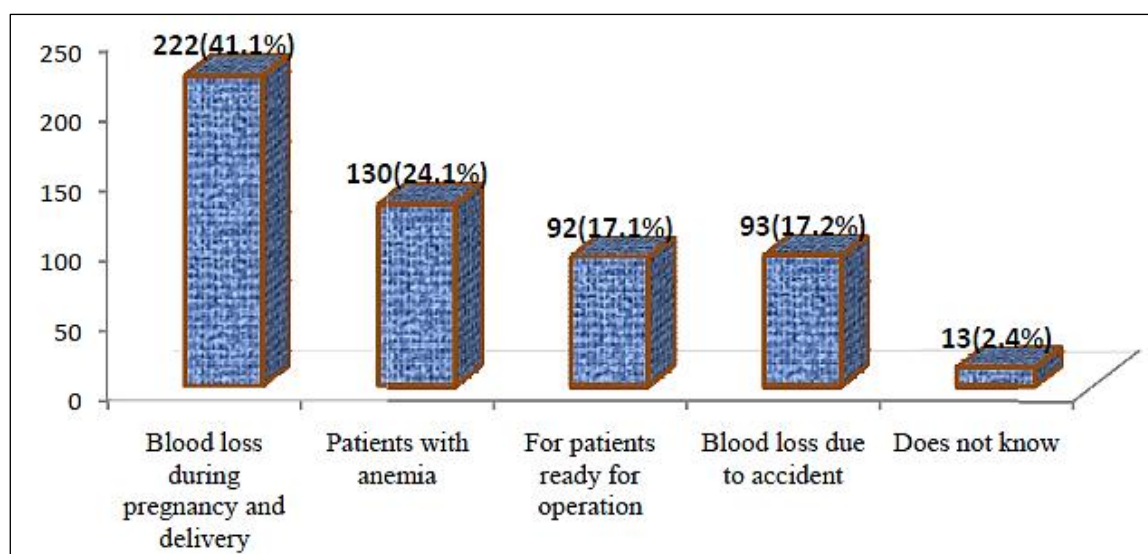


Fig. 1: Obstetrics and Gynecology Patient Attendants' Response on Conditions in Which Blood Transfusion is Needed, Jima University Specialized Hospital, South West Ethiopia, 2015.

Table 1: Socio-Demographic Characteristics of Obstetrics and Gynecology Patient Attendants at Jima University Specialized Hospital, South West Ethiopia, 2015.

Variables	Number (frequency)
Age (Mean=,30.54, Sdv= ±14.99)	
<21	35 (8.3)
21–30	238 (56.1)
31–40	124 (29.2)
Greater Than 40	27(6.4)
Residence	
Jimma	151 (35.6)
Out of Jimma	273 (64.4)
Sex	
Male	257 (60.6)
Female	167 (39.4)
Ethnicity	
Oromo	287 (67.7)
Amhara	66 (15.6)
Tigre	5 (1.2)
Dawro	31 (7.3)
Gurage	14 (3.3)
Others**	21 (5.0)
Religion	
Orthodox	140 (33.0)
Muslim	235 (55.4)
Protestant	49 (11.6)
Occupation	
Farmer	155(36.6)
Civil Servant	100 (23.6)
Merchant	83 (19.6)
Student	61 (14.4)
Other*	25 (5.9)
Educational status	
Cannot Read And Write	91 (21.5)
Read And Write Only	146 (34.4)
Grade 1–8	73 (17.2)
Grade 9–12	74 (17.5)
College And Above	40 (9.4)
Marital status	
Married	311(73.3)
Unmarried	113 (26.7)
Monthly household income	
<500	146 (34.4)
501–1000	96 (22.6)
1001–1500	36 (8.5)
>1501	146 (34.4)

*Other**Daily laborer, NGO, Employees

*Others***-Wolaita, Somali

Table 2: Knowledge of Voluntary Blood Donation among Obstetrics and Gynecology Patient Attendants' at Jima Specialized Hospitals, South West Ethiopia, 2015.

Parameters	Correctly Responded	Incorrectly Responded
Hearing about blood donation/transfusion	395 (93.2)	29 (6.8)
Having source information on blood donation	395 (93.2)	29 (6.8)
Source of blood for transfusion	370 (87.3)	54 (12.7)
Knowledge on blood transfusion saving lives	390 (92.0)	34 (8.0)
Frequency blood donation per year(interval)	81 (19.1)	343(80.9)
Weight requirement for blood transfusion	164 (38.7)	260 (61.3)
Age requirement for blood donation	228 (53.8)	196 (46.2)
Volume of blood donated at once	110 (25.9)	314 (74.1)
Frequency blood donation per year(interval)	81 (19.1)	343 (80.9)
Weight requirement for blood transfusion	164 (38.7)	260 (61.3)

Table 3: Obstetrics and Gynecology Patient Attendants' Attitude on Voluntary Blood Donation at Jima University Specialized Hospital, South-West Ethiopia, 2015.

Characteristics	SD	DA	UD	A	SA
Blood transfusion saves life	5(1.2%)	7(1.7%)	24(5.7%)	118(27.8%)	270(63.7%)
Blood donation is responsibility of humanity	13(3.1%)	65(15.3%)	61(14.4%)	138(32.5%)	147(34.7%)
Patient attendant should be asked for blood donation	15(3.5%)	51(12%)	43(10.1%)	167(39.4%)	148(34.9%)
Both male and female can donate blood	18(4.2%)	18(4.2%)	18(4.2%)	18(4.2%)	18(4.2%)
Both rural and urban community can donate	13(3.1%)	13(3.1%)	13(3.1%)	13(3.1%)	13(3.1%)
Blood donation can affect health condition of a donor	131(30.9%)	131(30.9%)	131(30.9%)	131(30.9%)	131(30.9%)
Blood donation should be for only families / relative	157(37%)	157(37%)	157(37%)	157(37%)	157(37%)
There should be payment/ gift for blood donation	135(31.8%)	135(31.8%)	135(31.8%)	135(31.8%)	135(31.8%)
Blood donation depends on occupation of a donor	153(36.1%)	153(36.1%)	153(36.1%)	153(36.1%)	153(36.1%)
Hospitals have enough blood for transfusion	93(21.9%)	93(21.9%)	93(21.9%)	93(21.9%)	93(21.9%)
Volunteers are assessed for fitness before donation	4(0.9%)	4(0.9%)	4(0.9%)	4(0.9%)	4(0.9%)

Table 4: Bivariate and Multivariate Analysis of Factors Associated with Voluntary Blood Donation among Obstetrics and Gynecology Patient Attendants at JUSH, Western Ethiopia, and November 2015.

Factors	Blood donation		COR (95% CI)	AOR (95% CI)
	Yes	No		
Age of Respondents				
Less than 21	12	23	1	1
21-30	43	195	2.36(1.09-5.12)	
31-40	28	96	1.70(0.79-4.04)	3.02(1.32-4.33)
Greater than 40	2	25	6.52(1.31-32.31)	
Ethnicity				
Oromo	48	238	1	
Amhara	23	43	1.04(0.52-2.08)	
Others*	13	58	0.63(.34-1.15)	
Sex				
Male	59	198	1	1
Female	26	141	1.62 (0.97-2.69)	0.57(0.33-0.99)

Religion				
Protestant	14	35	0.89(.435–1.854)	
Muslim	34	201	2.12(1.124–3.582)	
Orthodox	37	103	1	
Marital Status				
None married	26	87	1	
Married	59	252	1.27(0.154–3.262)	
Knowledge				
Knowledgeable	83	252	14.33(3.45–59.4)	7.37(1.67–32.54)
Not knowledgeable	2	87	1	1
Attitude				
Favorable	80	240	6.60(2.59,16.78)	3.59(1.32–9.72)
Unfavorable	5	99	1	1
Household Monthly Income				
500	25	121	1	
501–1000	12	84	1.44(0.68–3.03)	
1001–1500	5	31	1.28 (0.45–3.61)	
>1500	44	103	0.49(.28–0.86)	

DISCUSSION

The study revealed that only 85(20%) of obstetrics and gynecology patient attendants have currently donated blood voluntarily. The current proportion of voluntary blood donation is higher than study findings of similar study in northern Ethiopia (Debramarkos) and Mekelle city where voluntary blood donation is only about 16.1% and 12% respectively [12,13]. The difference in the practice of blood donation could be due to variation in the setup of study settings since some of the studies were conducted among health professionals and some others were at school level. But our study was conducted among attendants who were in the real situation and sometimes their must to donate blood, because the one who needs blood might be their immediate relative like child, father or mother etc. On the other hand the current finding is lower than findings of Tanzania, Benin and northern Nigeria [12, 14, 15], but greater than study done in Haiti (6.1%) and India (13.9%) [16, 17].

Concerning future willingness of blood donation, more than two-third of respondents, 293(69.1%) has willingness to donate, if asked in the future. Almost all (94%) of current donors have strong willingness to donate blood regularly in the future if conditions are facilitated for them. Reasons and

misconceptions listed by study participants who do not have willingness to donate blood 131(30.9%) are almost similar with reasons of non-current donors. A common reason listed by respondents who do not donate and don't have willingness for future donation in this research is also supported by other similar studies. Inability to think of it (33.8 %), lack of opportunity to donate blood (32.7 %), lack of information, unfit to donate, a need to donate for a friend, fear of needle were among common reasons supported by other studies[3,18–20].

From this cross sectional study it was found that attendant's age is one of the significant predictors of voluntary blood donation. Attendants who were in their 30's were about 3x times more likely to donate blood voluntarily when compare with those who were in their 20's (AOR =3.02, 95%CI= 1.32–4.33). This finding is congruent with similar studies done at Addis Ababa of Ethiopia which showed older age groups are more likely to donate blood voluntarily [18]. Another study from Karachi and Iran have supported the current finding, the two earlier study showed that older age groups were positively associated with the practice of blood donation [19, 22]. This might be attributed to increased knowledge and developed supported personal

attitude from personal experience from donating blood. On the other hand, youngers have overall less experience with medical intervention and the associated venipuncture procedure (needle-associated anxiety) [23].

Another finding of the present study is that sex of the attendant is also an important predictor of voluntary blood donation. Female attendants are about 43% less likely to voluntarily donate blood when compared with male attendants (AOR = 0.57, 95%CI= 0.33–0.99). This finding is consistent with findings of study Nigeria, Nepal and Iran which reported males have increased odds of voluntary blood donation compared to female sex [1, 24]. It may be that females mistakenly do not take calculated risk and according to Ethiopian culture females are most of the time are not decision maker rather guided by male.

Attendants knowledge on blood donation is found strongly associated with voluntary donation. Attendants who were knowledgeable on blood donation were about 7 times more likely to donate blood to their attendees when compared with none knowledgeable (AOR=7.37, 95CI%=1.67–32.54). The above association is in line with similar study done in Debramarkos which showed that knowledgeable participants in Debra Markos town is 3.7 times more likely to donate blood compared to none knowledgeable [12]. Our finding is also supported by study from Tanzania which showed students who have correct knowledge on blood donation have increased odd of voluntary blood donation [23]. The above association could be due to that knowledge of blood donation is a pre-requisite in obtaining access to and providing voluntary blood donation timely and effectively. Generally correct knowledge about specific issue is universally accepted reason for healthy life style.

The last but not least variable found having strong relationship with attendant's voluntary blood donation is their attitude. Attendants having favorable attitude towards voluntary blood donation were 3.6 times more likely to donate blood compared to those who have unfavorable attitude (AOR=3.59, 95%CI=1.32–9.72). The result is also confirmed by same study done in Mekelle

among students which actually reported students having supportive attitude were found three times more likely to donate blood voluntarily [2].

CONCLUSION

Practice of blood donation among attendants of obstetrics and gynecologic patient is very low far behind the demand. Even though there is high willingness among current voluntary donor, but total future willingness in very low. Not having enough blood, fear of needle piercing and haven't thought about blood donation were some of the different misconceptions and lack of understandings for low practice and low willingness of blood donation. Age, sex, knowledge and attitude of attendants were important predictors of voluntary blood donation to their attendees.

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Cite this Article

Bedasa Elias, Hinsermu Bayu, Fitsum Araya. Voluntary Blood Donation, Future Willingness and Associated Factors Among Attendants of Obstetrics and Gynecology Patients in JIMA University Specialized Hospital, Oromia region, Ethiopia, 2015. *Research & Reviews: Journal of Computational Biology*. 2017; 6(3): 1–8p.