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Original Research Article

Community survey on the knowledge, attitude, and practice of blood donation in Ebonyi State, Southeast Nigeria

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ABSTRACT

Background: Blood transfusion is a vital component of health care delivery. The populace perspective on blood donation is critical to ensure adequate and safe blood supply. This study aimed to assess the knowledge, attitude, and practice of blood donation among adults in a southeastern state in Nigeria.
Methods: This was a community-based cross-sectional study. A total of 636 participants aged 18-60 years participated in the study. Multi-stage and systematic random sampling was involved in selection of study participants and pretested questionnaires were administered. Fishers exact test was used to test statistical significance and multivariate logistic regression was used to determine the predictors of outcome and control of confounding variables.
Results: Majority, 71.2% of the participants were assessed as having good knowledge while 62.9% had a good attitude towards blood donation but only 32.5% had good practice. Most of the reasons for not donating blood include that no one asked for it (42.3%) and didn't think of it (24.7%). Males, higher education level, and being an orthodox church member were positively associated with good blood donation attitude.
Conclusions: Knowledge and attitude towards blood donation is good. However, the level of practice is low. The most important reasons for not donating blood include lack of information on when it is needed and self-perceived risks of pain, anemia, and unfitness due to manual/farm work. Community education on the safety of blood donation practices and establishment of donor reminder systems are needed to improve blood donation practices.

Keywords: Attitude, Blood donation, Knowledge, Practice, Community

INTRODUCTION

Blood transfusion is a vital component of the health care delivery system of every country. In Nigeria, about a quarter of pregnancy and childbirth-related deaths are due to blood loss or shortage. [1] Similarly, the high burden of sickle cell anaemia, malaria, cancer, trauma from road traffic accidents, conflict, insurgency, and various surgical needs which require blood, sustainable supply of safe blood, and blood products which are critical to saving lives.[2] Despite its importance in saving lives, the voluntary non-renumerated donor blood is not keeping pace with escalating blood needs.[3] Most sub-Saharan African countries fall short of world health organisation (WHO) recommendation of self-sufficiency for all countries in all blood product supplies from voluntary donors leaving a large deficit in blood transfusion services. Nigeria's national blood transfusion service (NBTS) statistical report shows a marked deficit in the supply of safe blood with a shortfall of about 73.3%.[4] The impact of such a humongous deficit on the health care delivery system of a country with over 200 million people

cannot be overemphasized. Generally, blood is sourced from voluntary non-remunerated, family replacement, and commercial donors, amongst which voluntary donors are the safest since they give blood voluntarily out of noncash incentives, unlike commercial donors who can conceal their true health status for monetary compensation. In Nigeria, the majority of donors are family replacement donors while only about 8% are voluntary donors.[4,5] This marked deficit in the supply of safe blood from voluntary donors and excessive demand for family replacement paved the way for commercial donors which constitute about the majority of donors in some places.[6]

Despite advocacy and recommendation by WHO for voluntary non-remunerated blood donors as the best form of donors, commercial and family replacement donors still hold sway to provide blood for blood banks in our setting due to gross apathy to voluntary donation despite the attendant risks of transfusion transmissible infections even in the face of the lack of more efficient screening techniques.[6] It is therefore of utmost importance to devise a framework to motivate and recruit more voluntary blood donors with additional efforts geared towards their retention in the donor pool in Nigeria and other developing countries.

The WHO estimates that blood donation by one percent of the population is generally the minimum necessary to meet a nation's basic requirements for blood. Assessing the knowledge, attitude, and practice of blood donation among the populace can explain why Nigeria has not attained the WHO recommended donor population. This study aims to fill knowledge gap by surveying community setting to understand community knowledge and perception which influences their practice about blood donation. This will help to proffer recommendations that strengthen blood donation schemes in environment and other areas with similar challenges.

METHODS

Study design

This was a community based descriptive cross-sectional study conducted between November 2020 to April 2021.

Study area

The study was carried out in seven local government areas (LGA) in Ebonyi State Southeast zone of Nigeria. The LGAs are Abakaliki, Ebonyi, Afikpo south, Afikpo north, Ikwo, Ohaozara and Onicha.

Study population and selection

Single population proportion formula, [n=($Z\alpha$/2)2 (1−p)/d2], was used to calculate the sample size. Due to lack of published information showing the knowledge, attitude, and practice of blood donation in this particular study area, we took 50% to get maximum sample size by considering a 95% confidence interval, marginal error (d) of 5%, and design effect of 2. Then, final sample size determined to be 600. However, 636 participants were involved in the study to further improve external validity of findings. Multi-stage and systematic random sampling involved in selection of study participants from local government areas, wards, communities and household units. From selected households, 636 study participants included, one from each household.

Inclusion criteria

Consenting adults between 18-60 years were included.

Exclusion criteria

Individuals below 18 years and above 60 years and those who did not give consent for the study were excluded.

Study tool

Pre-validated closed-ended questionnaires were employed for data collection by seven research assistants (scientific officers) and four senior health care professionals (resident doctors). Sociodemographic characteristics and information on the knowledge, attitude, and practice of blood donation by the participants were collected.

Statistical analysis

Data collected were entered into the IBM SPSS version for data processing and analysis. Fishers 'Exact test used to test statistical significance and a p≤0.05 considered statistically significant for all statistical tests. Multivariate logistic regression model was used to determine predictors of outcome and control of confounding variables. Both the crude odds ratio and adjusted odds ratios (AORs) were reported with their 95% confidence interval (CI). Items used to assess knowledge, attitude, and practice of blood donation among respondents. The right responses were scored 1 and then 0 for wrong responses. Scores summed and then converted to a percentage. Respondents assessed as having good scores of 70-100%; scores below 70% assessed as poor.

Ethical issues

Ethical consideration for the study protocol was approved by research and ethics committee Alex Ekwueme Federal university teaching hospital Abakaliki Ebonyi State. Written informed consent was obtained from all study participants, and confidentiality was maintained during and after the data collection.

RESULTS

Demographics

A total of 636 respondents participated in the study. More than 80% were within the age category of 18-45 years

with over 60% less than 36 years. The sex distributions were almost equally represented with 50.6% males and 49.4% females; and most (328, 51.7%) had obtained a tertiary/post-graduate degree. Majority (400; 62.9%) resided in the urban area (Table 1).

Knowledge of blood donation

More than 90% know that blood transfusion is a lifesaving treatment, more than 80% know the common blood groups and where blood donation can be done, and about 70% know that being healthy is an eligibility criterion for participating in blood donation. About 32% know that blood can be donated every 3 months, more than 60% believe that blood donation can cause infection and death, and 25% do not know about any benefit of blood donation. Generally, 71.2% of the respondents turned out assessed as having good knowledge while 28.8 had poor knowledge (Table 2).

Attitude towards blood donation

Majority (70.9%) perceived blood donation as a good idea and are willing to donate, while 7.7% said it's a bad idea and 13.3 % are undecided. Almost 60% think that people should donate blood for anyone who needs it and up to 30% would donate only for family and friends. However, only 37.4% are willing to become regular donors, generally, 62.9% of respondents were assessed to have a good attitude towards blood donation (Table 3).

Practice towards blood donation

Only 36.9% of respondents had ever donated blood. Out of this, almost 50% donated for family member or friend, 37% donated voluntarily for those in need of it, while 13.6% donated for financial reward. Most of the reasons for not donating blood include that no one asked for it (42.3%), didn't think of it (24.7%), fear of pain (12.8%) and blood shortage (11.7%). Generally, respondents who assessed as having good practice 207 (32.5%) (Table 4). Fishers' Exact test reveals a statistically significant association between some demographic features, including age, education level, religion, and local government area, and the attitude of respondents toward blood donation, having p values less than 0.05. Analysis of the predictors of apathy among respondent's Odds ratio for good attitude (95%CI) shows respondents within the age group of 36-45 years were 2.4 times more likely to have good attitude than those >55 years, having a 95% interval value of 1.13-5.37 (Table 5). There were statistically significant relationships established with age, sex, marital status, location and occupation of respondents, and practice of blood donation. These all had p values less than 0.05 (Table 6). Logistic regression analysis of selected demographic features and blood donation practices showed males were 2.1 times more likely to have good blood donation practices than females; good knowledge predicting 1.3 times possibility of having good attitude, good attitude predicts 2.2 times possibility of good practice (Table 7).

Table 1: Socio-demographic features of respondents, (n=636).

Variables	N	Percentage (%)
Age group (years)		
18-25	182	28.7
26-35	218	34.3
36-45	128	20.1
46-55	62	9.7
>55	46	7.2
Sex		
Male	322	50.6
Female	314	49.4
Marital status		
Single	320	50.3
Married	277	43.6
Divorced	20	3.1
Widowed	19	3.0
Educational qualification		
None	41	6.4
Primary	48	7.5
Secondary	219	34.4
Tertiary/ postgraduate	328	51.7
Occupation		
Farm	75	11.8
Civil servant	157	24.7
Trading/ business	166	26.1
Student	196	30.8

Continued.

Variables	N	Percentage (%)
Others	42	6.6
Religion, (n=598)		
Orthodox	248	41.5
Pentecostal	259	43.3
Celestial	30	5.0
Traditional	38	6.4
Jehovah Witness	23	3.8
Local government area		
Abakiliki	180	28.3
Ebonyi	200	31.4
Afikpo North	39	6.1
Afikpo South	57	9.0
Ikwo	34	5.3
Ohaozara	34	5.3
Onicha	92	14.5
Location		
Urban	400	62.9
Rural	236	37.1

Table 2: Knowledge of blood donation, (n=636).

Variables	N	Percentages (%)
Blood transfusion is a life-saving treatment		
Yes	585	92.0
No	51	8.0
Know where blood donation can be done		
Yes	518	81.4
No	118	18.6
Know the common blood groups		
Yes	475	74.7
No	161	25.3
Know your blood group		
Yes	542	85.2
No	94	14.8
Blood group of respondents		
A+	122	21.7
A-	26	4.6
B-	24	4.3
AB+	67	11.9
AB-	16	2.9
O+	257	45.8
O-	49	8.7
How often an individual can donate blood, (n=624)		
Weekly	20	3.2
Monthly	40	6.4
3 monthly	202	32.4
Yearly	101	16.2
Don’t know	261	41.8
Who can donate blood		
Men under 18-65 years	105	17.5
Women under 18-65 years	26	4.3
Weight >45 kg	26	4.3
Healthy	444	73.9
Blood donation leads to*, (n=1369)		
Permanent blood shortage	217	40.5
Infection	328	61.2
Fainting/ dizziness	488	91.0

Continued.

Variables	N	Percentages (%)
Sudden death	336	62.7
Best source of blood donor, (n=623)		
Voluntary donor	240	38.5
Family/friends	200	32.1
Paid donor	76	12.2
Don't know	107	17.2
Diseases tested for before blood donation		
HIV	532	86.1
Hepatitis B	322	52.1
Hepatitis C	246	39.8
Syphilis	221	35.8
Malaria	98	15.9
Others	37	6.0
Health benefits of blood donation*(n=661)		
Free medical screening	187	28.3
Satisfaction	131	19.8
Good for donor's health	168	25.4
Don't know	175	26.5
Who needs donated blood*(n=1051)		
Pregnant women	176	28.5
During child delivery	255	41.3
Accident victims	379	61.3
Surgery patients	157	25.40
Patient with fever	80	12.9
Don't know	4	0.6
Source of information on blood donation* (n=745)		
TV/radio/ newspaper	175	28.3
Church	67	10.8
School	183	29.6
Friend/relative	140	22.6
Outreach programs	109	17.6
Knowledge of blood donation assessment		
Good knowledge	453	71.2
Poor knowledge	183	28.8

Table 3: Attitude toward blood donation, (n=636).

Variables	N	Percentages (%)
Perception on blood donation		
Bad idea	49	7.7
Good idea	451	70.9
Undecided	86	13.5
No response	50	7.9
Who should people donate blood to		
No one	27	4.3
Relative/Friends	200	32.2
Anyone in need	368	59.2
Paid	27	4.3
Willing to donate blood		
Yes	470	73.9
No	166	26.1
Willing to become a regular donor		
Yes	238	37.4
No	398	62.6
Encourage family/friends to donate		
Yes	508	79.9

Continued.

Variables	N	Percentages (%)
No	128	20.1
Preferred action when a family member needs blood, (n=623)		
Prefer to buy	85	13.6
Will donate if fit	506	81.3
Others	32	5.1
Type of donation intended in future*, (n=612)		
Family/friend	197	34.0
Voluntary	317	54.7
Assessment of attitude of respondents		
Good attitude	400	62.9
Poor attitude	236	37.1

Multiple response*

Table 4: Practice of blood donation, (n=636).

Variables	N	Percentage (%)
Ever donated blood		
Yes	235	36.9
No	401	63.1
Type of blood donation practiced, (n=235)		
Replacement for family/friends	116	49.4
Voluntary	87	37.0
Paid	32	13.6
Frequency of donation		
Never	401	63.1
One time	120	18.9
Twice	66	10.4
More than twice	49	7.7
Reasons for blood donation, (n=211)		
Family/friends	115	54.5
Voluntary/feeling of satisfaction	60	28.4
For pay	28	13.3
To know screening status	8	3.8
Reasons for not donating blood*, (n=598)		
Did not think of it	108	24.7
No one asked for it	185	42.3
Fear of pain	56	12.8
Blood shortage	51	11.7
Do hard work and needs blood	47	10.8
Do not want my blood to be sold	31	7.1
No payment	29	6.6
Fear of sight of blood	19	4.3
Fear of knowing my screening status	16	3.7
My culture forbids it	14	3.2
My religion forbids it	8	1.8
Assessment of practice of blood donation		
Good practice	207	32.5
Poor practice	429	67.5

Table 5: Factors associated with respondents apathy (Attitude).

Variables	Attitude towards blood donation, n (%)		P value
	Good	Poor	
Age group (years)			
18-25	113 (28.3)	69 (29.2)	0.008*
26-35	139 (34.8)	79 (33.5)	
36-45	92 (23.0)	36 (15.3)	
46-55	37 (9.3)	25 (10.6)	

Continued.

Variables	Attitude towards blood donation, n (%)		P value
>55	19 (4.8)	27 (11.4)	
Sex			
Male	205 (51.3)	117 (49.6)	0.743
Female	195 (48.8)	119 (50.4)	
Marital status			
Single	195 (48.8)	125 (53.0)	0.096
Married	186 (46.5)	91 (38.6)	
Divorced	9 (2.3)	11 (4.7)	
Widowed	10 (2.5)	9 (3.8)	
Educational qualification			
None	22 (5.5)	19 (8.1)	<0.001*
Primary	19 (4.8)	29 (12.3)	
Secondary	134 (33.5)	85 (36.0)	
Tertiary/ postgraduate	225 (56.3)	103 (43.6)	
Occupation			
Farm	47 (11.8)	28 (11.9)	0.202
Civil servant	106 (26.5)	51 (21.6)	
Trading/ business	96 (24.0)	70 (29.7)	
Student	129 (32.3)	67 (28.4)	
Others	22 (5.5)	20 (8.5)	
Religion			
Orthodox	154 (41.2)	94 (42.0)	<0.001*
Pentecostal	182 (48.7)	77 (34.4)	
Celestial	15 (4.0)	15 (6.7)	
Traditional	16 (4.3)	22 (9.8)	
Jehovah witness	16 (4.3)	16 (7.1)	
Local government area			
Abakiliki	101 (25.3)	79 (33.5)	0.003*
Ebonyi	120 (30.0)	80 (33.9)	
Afikpo North	32 (8.0)	7 (3.0)	
Afikpo South	33 (8.3)	24 (10.2)	
Ikwo	29 (7.3)	5 (2.1)	
Oho Ozara	23 (5.8)	11 (4.7)	
Onicha	62 (15.5)	30 (12.7)	
Location			
Urban	257 (64.3)	143 (60.6)	0.396
Rural	143 (35.8)	93 (39.4)	

Table 6: Relationship between demographic features of respondents and blood donation practices.

Variables	The practice of blood donation		P value
	Good	Poor	
Age group (years)			
18-25	36 (17.4)	146 (34.0)	<0.001*
26-35	68 (32.9)	150 (35.0)	
36-45	58 (28.0)	70 (16.3)	
46-55	26 (12.6)	36 (8.4)	
>55	19 (9.2)	27 (6.3)	
Sex			
Male	129 (62.3)	193 (45.0)	<0.001*
Female	78 (37.7)	236 (55.0)	
Marital status			
Single	85 (41.1)	235 (54.8)	<0.012*
Married	107 (51.7)	170 (39.6)	
Divorced	8 (3.9)	12 (2.8)	
Widowed	7 (3.4)	12 (2.8)	
Educational qualification			

Continued.

Variables	The practice of blood donation		P value
None	11 (5.3)	30 (7.0)	0.688
Primary	14 (6.8)	34 (7.9)	
Secondary	77 (37.2)	142 (33.1)	
Tertiary/ postgraduate	105 (50.7)	223 (52.0)	
Occupation			
Farming	20 (9.7)	55 (12.8)	0.014*
Civil servant	59 (28.5)	98 (22.8)	
Trading/ business	63 (30.4)	103 (24.0)	
Student	48 (23.2)	148 (34.5)	
Others	17 (8.2)	25 (5.8)	
Religion			
Orthodox	79 (39.9)	169 (42.3)	0.457
Pentecostal	93 (47.0)	166 (41.5)	
Celestial	10 (5.1)	20 (5.0)	
Traditional	8 (4.0)	30 (7.5)	
Jehovah witness	8 (4.0)	15 (3.8)	
Local government area			
Abakiliki	55 (26.6)	125 (29.1)	0.163
Ebonyi	61 (29.5)	139 (32.4)	
Afikpo North	16 (7.7)	23 (5.4)	
Afikpo South	18 (8.7)	39 (9.1)	
Ikwo	6 (2.9)	28 (6.5)	
Oho Ozara	14 (6.8)	20 (4.7)	
Onicha	37 (17.9)	55 (12.8)	
Location			
Urban	124 (59.9)	276 (64.3)	0.294
Rural	83 (40.1)	153 (35.7)	

Table 7: Association between knowledge, attitude, and practice of blood donation.

Variables	The practice of blood donation, N (%)		P value
	Good	Poor	
Knowledge of blood donation			
Good	149 (72.0)	304 (70.9)	0.852
Poor	58 (28.0)	125 (29.1)	
Attitude towards blood donation			
Good	163 (78.7)	237 (55.2)	<0.001*
Poor	44 (21.3)	192 (44.8)	OR (95% CI)=2.2 (1.63-2.92)

*Statistically significant.

DISCUSSION

Information on knowledge, attitude and practice of blood donation can provide a basis for execution of projects that aim to educate, motivate, recruit and retain regular voluntary donors. The findings of this study are similar to a previous study which revealed that majority of the populace had a good knowledge about their blood groups, where blood donation can be done and the role of blood transfusion as a life saving treatment.[7] However lower knowledge levels were noted in the study populace in Ethiopia and Jordan while higher levels of knowledge were found by investigators in Malaysia, India, and Benin City in Nigeria.[8-12] This could be due to differences in the assessment technique and demographic differences.

Studies that recorded higher knowledge levels about blood donation were conducted among students or health workers who are at the advantage to acquire information, while studies that revealed lower knowledge levels which were conducted in the general populace comprising of literate and non-literate participants.

Even though the respondents in the current study exhibited a good knowledge of blood donation, their knowledge was incomplete in some aspects. There was less than expected knowledge on the best source of blood being from a voluntary donor, frequency of blood donation, and adverse effects of blood donation. Only about one-third knew that blood donation can be done every 3 months, while more than 50% believe it can cause infection and death and almost all think it can cause fainting. Public education are veritable tools needed to boost populace knowledge about blood donation is needed.[13-14] Education on blood donation should incorporate benefits for recipient and donor.

From our study and similar to published articles, family benefits are the biggest reason for donating blood followed by altruism and reward.[15] Poorer attitude to blood donation has been exhibited in previous studies than what the current study opined.[16] The reason for reluctance to become regular donors could be due to poor appreciation of the need, safety, and benefits of regular blood donation by the populace. Factors significantly associated with good blood donation attitudes include age, educational level, and religion. From our study, the younger age group showed a better attitude for blood donation. This is consistent with previous studies in Nigeria and other African nations.[7,17-19] This is an advantage over some developed nations which showed more elderly blood donors with aging constituting a daunting challenge to blood donation in those nations.[20] The younger age group should be targeted to become regular donors by encouragement strategies, while the older age group would be engaged with motivational strategies to encourage their participation.[20] Public education is a highly needed tool for dissuading the myths surrounding the safety of blood donation.[21-22] Religious groups with more doctrinally friendly disposition to blood donation see it as an act of charity unlike those whose doctrine is averse to blood donation and transfusion. Religious leaders wield influence on their congregation should be adopted as stakeholders in the voluntary blood donation drives.[23]

Similar to previous studies, despite having a good knowledge and attitude on blood donation, only 32.5% of respondents in the current study had good donation practice of which most are family replacement donors.[24-26] Reasons for not donating blood include that; no one asked for it, they did not think of it, fear of pain, fear of becoming anaemic after blood donation and self-perceived unfitness to donate due to manual work (mostly farming). The dissociation between attitude and practice of blood donation revealed by this study shows that people are willing to donate, but have barriers to the practice of blood donation. Again, the barriers identified in this study can be taken care of by sustained public education and availability of blood donation centres with strategies to keep communication with potential donors via telephone calls, text messages, WhatsApp and emails. Age, sex, marital status, and occupation showed a significant relationship with the practice of blood donation. Younger persons perceive themselves fit and most chronic diseases like hypertension are less common in this age group.[27-28] Deterrents to female participation in blood donation include the effect of menstruation, pregnancy, lactation and lower literacy rate than females in Nigeria and educational status correlates with attitude to blood donation.[22] However, some studies have shown that women have accounted for a good percentage of donors and we can employ female-sex specific blood donation surveys, enlightenment program and campaigns to encourage women to donate.[29] Students, civil servants and self-employed were more likely to donate blood clearly because they are more enlightened but the farmers in our populace are mostly uneducated and are more likely to be influenced about misconceptions about safety of blood donation. Most farmers in our environment believe that donating blood will drain the energy they need to do farm work.

Limitations

Limitations of this study are noted which include that only seven out of the thirteen local government areas in the state were involved in the study and participants in hard -to-reach inaccessible areas were not included. These factors limits the generalization of our findings. Despite this, the results of the present study are important because there is is the first study assessing blood donation practice among Ebonyi state populace.

CONCLUSION

The level of knowledge and attitude toward blood donation is good, however, the practice of blood donation is very low in the study setting. About 63% of the study population have never donated blood before. The most important reasons for not donating blood include lack of information on when it is needed and self-perceived risks of pain, anemia, and unfitness due to manual/farm work. To improve blood practice donation, there is a need for community educational activities and sustained mass motivational campaigns on benefits and safety of blood donation. Effective communication and reminder systems with potential blood donors by blood bank centres.

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