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Original research article

A study to assess the knowledge, attitude and practice regarding blood donation among adults attending the medical out-patient department in a tertiary care hospital, Chennai

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Abstract

Background: Scarcity of blood and blood products is frequently encountered in health care institutions. Blood donation is a fundamental and a requisite part of any nation's health care delivery system for a lifesaving intervention. In all parts of the world the need for blood and blood products is rising. According to the World Health Organization (WHO), at least 1% of the nation's population should donate blood voluntarily to meet the basic requirement for blood and blood products.

Objectives

- To assess the knowledge, attitude, practice regarding blood donation among adults attending the medical out-patient department.
- To identify the factors associated with blood donation.

Methods

A cross sectional study was carried out in ESIC Medical College and Hospital. Individuals aged 18-60 years was taken into the study with a study period of 3-6 months. Consecutive, Non-Probability Sampling Technique was performed from the General Medicine OPD. A semi structured questionnaire was employed as a data collection tool in the form of Google Sheets due to the pandemic situation. Multiple logistic regression analysis was used to examine association between the independent variables and the dependent variables. The data was analyzed by using SPSS software.

Results: Among our study subjects, 45% of them had good knowledge on blood donation and 44% of our subjects had a correct attitude towards blood donation. Only 33.3% of them had good practices towards blood donation. The most common reason quoted for not donating blood was that they were more bothered about their own health which by donating blood would lead on to some health problems.

Conclusion: The present study shows an average prevalence of knowledge and attitude among the study subjects whereas when it comes to practice it was found to be less. There should be a regularly scheduled awareness creation and voluntary blood donation campaigns organized at the community level.

Keywords: Attitude, blood donation, knowledge

Introduction

Safe and effective blood transfusion is a vital component in improving health care delivery and preventing the spread of blood-borne diseases worldwide. Every year, millions of lives are saved through blood transfusion, yet the quality and safety of blood transfusion are still of interest, especially in hospitals in developing countries [1-2]. According to the World Health Organization (WHO) recommendations, for any country to meet the minimum demand for blood, the donation should be at least 1% of the population [3]. It is estimated that around 234 million major operations are performed every year globally [4]. Blood scarcity is frequently encountered in hospitals and is due to an imbalance between the increasing demand for safe blood and blood products on the one hand and failure to organize regular blood supply due to misconceptions, perceived harms and risks, and a lack of motivation among potential donors [5].

"Safe blood starts with me, blood saves lives" was the W.H.O theme for 2000 AD. Blood has always held a mysterious fascination for all and it is considered to be the living force of our body. Today, the use of whole blood is a well-accepted and a commonly employed measure without which many modern surgical procedures cannot be carried out [6].

Human blood is an essential element of the human life and there are no substitutes for it [7]. Blood is defined as most valuable drug by the world health organization that can be substituted only by blood. It is the nature's unique gift to the human beings for the survival, maintenance and normal restoration [8].

Voluntary Blood Donations considered as backbone of blood safety and safe transfusion practices. There

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is a serious need to improve the recruitment and retention of voluntary donor population to ensure sustainable and safe blood transfusion practice. There are three main types of blood donors: voluntary non-remunerated; family or replacement and remunerated or paid. The supply of safe blood can only be guaranteed with the help of regular, voluntary, non-remunerated blood donors [9]. It has been found that the voluntary non-remunerated blood donation is the safest form of blood donations [10]. These type of donors are considered as safest because it has been seen that the prevalence of transfusion transmitted infections is lowest among these donors and sero-positivity of transfusion trans-mitted diseases is greater in replacement blood donors than voluntary donors [11, 21].

An adequate supply of safe blood can only be ensured through regular donations by voluntary unpaid blood donors [3]. Understanding blood donor's motivations are crucial to improve the effectiveness of donor recruitment and retention programmes [13].

There are very few studies done in the community, where the awareness about blood donation needed to be strengthened and assessment of awareness, attitude and practice regarding blood donation will help in creating effective health education strategy to enhance blood donation. Thus, this study was primarily designed to assess the knowledge, attitudes and practice regarding blood donation in an urban community [14].

Objectives

- To assess the knowledge regarding blood donation among adults attending the medical out-patient department
- To assess the attitude regarding blood donation among adults attending the medical out-patient department
- To assess the practice regarding blood donation among adults attending the medical out-patient department
- To identify the factors associated with blood donation.

Methodology

Study design: Cross sectional study.

Study area: ESIC Medical College and Hospital.

Study population: Individuals aged 18- 60 years.

Study period: 3-6 months.

Sample size: Assuming good knowledge to be 50%.

By using the formula $N=4pq/d^2$ where P=Prevalence, Q=100-P, d = allowable error, the sample size is 384.

Sampling technique: Consecutive, Non Probability Sampling will be performed from the General Medicine OPD.

Inclusion criteria: Those aged 18-60 years (the eligible age group for blood donation as per the Indian blood bank guidelines) and willing to participate were included in the study.

Exclusion criteria: Critically ill adults were excluded from the study.

Study tool: A semi structured questionnaire was prepared by referring various published articles and was validated by experts.

Brief procedure: The study was carried out in ESIC Medical College and Hospital, Chennai. The ethical clearance was sought from the Institutional Ethical Committee. Informed written consent from each participant (18 to 60 years) was maintained. Semi structured questionnaire was administered, by using the interview method who visit the General Medicine OPD. The questionnaire collects data related to demographic variables, knowledge, attitude and practice regarding blood donation.

Statistical analysis

The data collected were coded and entered in Microsoft office excel worksheet and then transferred to SPSS.v.23 for analysis.

Mean and standard deviation were calculated for all the parametric variables. Multiple logistic regression analysis was used to examine the association between the independent variables and the dependent variable at 95% confidence level with $p<0.05$ considered as statistically significant.

Results

Table-1 shows the demographic Profile of Study Subjects. It is seen from the table that Majority of the population was Male with equal proportion to females in the age group maximum was between 41-50 years old. Most of the Population belonged to Hindu Religion, has completed their middle school and working as skilled workers.

Table 1: Socio-Demographic Profile of Study Subjects

Sociodemographic Variables		Frequency	Percentage
Gender	**Male**	**226**	**58.9**
	Female	158	41.1

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Age	21-30	113	29.4
	31-40	118	30.7
	41-50	112	29.2
	51-60	41	10.7
Religion	Hindu	321	83.6
	Muslim	33	8.6
	Christian	30	7.8
	Others	0	0
Education	Primary school	54	14.1
	Middle school	120	31.3
	High school	103	26.8
	Diploma	50	13.0
	Graduate and above	57	14.8
Occupation	Professional	29	7.6
	Semiprofessional	31	8.1
	Skilled	93	24.2
	Semi-skilled	130	33.9
	Unskilled	47	12.2
	Unemployed	54	14.1

Table 2: Knowledge Regarding Blood Donation

Knowledge Regarding Blood Donation			Frequency	Percentage
What is your blood group?		A -	6	1.6
		A+	55	14.3
		A1B+	8	2.1
		AB +	16	4.2
		AB-	7	1.8
		B-	6	1.6
		B+	141	36.7
		Don't know	24	6.3
		O-	8	2.1
		O+	113	29.4
Donating blood is good for the health of the donor.		True	50	13.0
		False	334	87.0
From what age can peoplestart donating blood?		18 years	121	31.5
		21 years	98	25.5
		25 years	127	33.1
		30 years	38	9.9
Can blood donation transmit the infection to donor?		Yes	208	54.2
		No	176	45.8
Can blood donation transmit the infection to recipient?		Yes	305	79.4
		No	79	20.6
Can any of the following people donate?	Pregnant women	Yes	318	82.8
		No	66	17.2
	Menstruating women	Yes	257	66.9
		No	127	33.1
	Lactating women	Yes	283	73.7
		No	101	26.3
	Diabetes patients	Yes	193	50.3
		No	191	49.7
	A Person who had consumed alcohol	Yes	291	75.8
		No	93	24.2
Which of the following infections can be transmitted from donor to recipient of blood transfusion?		All the Above	120	31.3
		Hepatitis B	51	13.3
		Hepatitis C	1	.3
		HIV	208	54.2
		Malaria	4	1.0
Which of the following diseases are donors screened for?		HIV	344	89.6
		Hepatitis A	32	8.3
		Filaria	**0**	**0**
		Tuberculosis	8	2.1
Which blood group is called as universal donor?		A	39	10.2
		AB	32	8.3
		B	83	21.6
		O	230	59.9
How often can you donate blood?		Every 3 months	253	65.9
		Every month	41	10.7

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	Every week	6	1.6
	Once every 3 years	84	21.9
What is the quantity of blood we can donate each time?	1 litre	40	10.4
	2 litres	2	.5
	500 ml	234	60.9
	Less than 500 ml	108	28.1

Majority of the study participants were aware of their blood group (97.4%). Out of 14 questions in assessing the knowledge on blood donation people who had scored 10 and above are considered as having adequate knowledge on blood donation and 10-5 are considered as moderate knowledge on blood donation and less than 5 are considered to be inadequate knowledge. Among our study subjects, only 45% of them had good knowledge on blood donation and the remaining 55% had a poor knowledge (Table 2).

Table 3: Attitude towards blood donation among the study subjects

Attitude Regarding Blood Donation		Frequency	Percentage
Blood donation is harmful to donors	Agree	50	13.0
	Neither agree nor disagree	113	29.4
	Disagree	221	57.6
The act of voluntary blood donation can motivate others to donate blood	Agree	169	44.0
	Neither agree nor disagree	139	36.2
	Disagree	76	19.8
Blood Donors should be remunerated?	Agree	94	24.5
	Neither agree nor disagree	139	36.2
	Disagree	76	19.8
Blood donation is life-saving	Agree	236	61.5
	Neither agree nor disagree	87	22.7
	Disagree	61	15.9
I will donate blood to complete strangers	Agree	152	39.6
	Neither agree nor disagree	140	36.5
	Disagree	92	24.0

The attitude towards blood donation was assessed by asking 5 questions and people who had mentioned 4 correct responses was considered as good attitude (n=134) and less than 4 are considered as poor attitude (n=38). Nearly 13% of the study subjects think that blood donation is harmful to donors and only 57.6% of our subjects had a positive and 29.4% feel it is neither agree nor disagree towards blood donation (table 3).

Table 4: Practices towards blood donation among the study subjects

Practice		Frequency	Percentage
1. Have you ever donated blood?	Yes	199	51.8
	No	185	48.2
2. Have you encouraged others to donate blood?	Yes	176	45.8
	No	208	54.2

Related to practices on blood donation we asked 2 questions and people who had correctly responded for 2, we considered as good practice (n=97) and less than that are considered as bad practice (n=139). So when it comes to practices only 51.8 % of them had good practices towards blood donation and only 48.2% of our subjects had ever donated blood in their life time (table 4).

Table 5: Reasons quoted by study subjects for not donating blood

Reasons for Not Donating Blood		Frequency	Percentage
Fear of health problem	Yes	160	41.7
	No	224	58.3
Fear of needle	Yes	125	32.6
	No	259	67.4
Religious prohibition	Yes	62	16.1
	No	322	83.9
Do not know the place to donate	Yes	117	30.5
	No	267	69.5
A friend/family told me not to donate	Yes	98	25.5
	No	286	74.5
I do not like the idea of blood donation	Yes	104	27.1
	No	280	72.9

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Lack of opportunity	Yes	187	48.7
	No	197	51.3
The blood banks misuse/sell the blood products for monetary benefits	Yes	117	30.5
	No	267	69.5
No remuneration	Yes	102	26.6
	NO	282	73.4

The most common reason quoted for not donating blood was that they were more bothered about their own health which by donating blood would lead on to some health problems and few people mentioned that they did not have an opportunity to donate blood (table 5).

Table 6: Logistic regression analysis of the socio-demographic variables and their knowledge on blood donation

Socio-demographic variable		**Good knowledge (n=135)**	**Low knowledge (n=165)**	**AOR**	**95% CI**
Age group	10-20	0	4 (2.4%)	R	
	21-30	28 (20.7%)	25 (15.1%)	0.781	0.516-0.918
	31-40	54 (40%)	32 (19.3%)	2.145*	1.915-2.345
	41-50	37 (27.4%)	87 (52.7%)	1.161*	0.917-1.456
	51-60	16 (11.8%)	17 (10.3%)	0.317	0.167-0.618
Gender	Male	82 (60.7%)	48 (29%)	2.715*	1.919-2.918
	Female	53 (39.2%)	117 (70.9%)	R	
Education	Primary school	0	3 (1.8%)	R	
	Middle school	9 (6.6%)	43 (26%)	0.387	0.219-0.498
	High school	44 (32.5%)	119 (72.1%)	2.518*	2.132-2.781
	Diploma	19 (14%)	0	2.148*	1.871-2.458
	Graduate and above	63 (46.6%)	0	3.167*	2.896-3.456
Occupation	Professional	28 (20.7%)	0	3.154*	2.891-3.345
	Semi-professional	3 (2.2%)	0	2.891*	2.641-3.143
	Skilled	10 (7.4%)	2 (1.2%)	1.145*	0.817-1.415
	Semi-skilled	84 (62.2%)	23 (13.9%)	0.918	0.716-1.236
	Unskilled	10(7.4%)	136(82.4%)	0.714	0.561-0.918
	Unemployed	0	3 (1.8%)	R	
Religion	Hindu	104 (77%)	132 (80%)	2.176*	1.987-2.437
	Muslim	6 (4.4%)	25 (15.1%)	R	
	Christian	25 (18.5%)	8 (4.8%)	3.179*	2.764-3.456
SES (based onmodified BG Prasad classification)	Class I	60 (44.4%)	6 (3.6%)	3.617*	3.145-3.971
	Class II	58 (42.9%)	82 (49.6%)	2.984*	2.541-3.215
	Class III	16 (11.8%)	51 (30.9%)	1.187	0.871-1.431
	Class IV	1 (0.7%)	26 (15.7%)	R	

*- P<0.05 statistically significant, R-reference group, AOR-adjusted odds ratio, 95% CI-Confidence interval.

Table 6 shows the logistic regression analysis between the socio-demographic factors and the knowledge components and it is inferred from the table that people in the age group between 30-50 years, male gender, graduates, professionals, semi- professionals, skilled workers had a better knowledge than people below 30 and above 60 years, females, people educated only upto middle School and people who were semi-skilled and unskilled and the difference was found to be statistically significant (p<0.05).
Hindus and Christians had a better knowledge than the Muslims and people belonging to class I and class II socio-economic status had a better knowledge than the people belonging to class III and class IV and this difference was found to be statistically significant (p<0.05) and a similar type of results was also seen for attitude and practices towards blood donation among our study subjects (table 7 and 8).

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Table 7: Logistic regression analysis of the socio-demographic variables and their attitude towards blood donation

Socio-demographic variable		Good attitude (n=132)	Poor attitude (n=168)	AOR	95% CI
Age group	10-20	0	4 (2.3%)	R	
	21-30	28 (21.2%)	25 (14.8%)	0.781	0.516-0.918
	31-40	53 (40.1%)	31 (18.4%)	2.045*	1.815-2.215
	41-50	35 (26.5%)	89 (52.9%)	1.161*	0.817-1.326
	51-60	16 (12.1%)	17 (10.1%)	0.317	0.167-0.618
Gender	Male	82 (62.1%)	48 (28.5%)	2.835*	1.989-3018
	Female	50 (37.8%)	120 (71.4%)	R	
Education	Primary school	0	3 (1.7%)	R	
	Middle school	7 (5.3%)	45 (26.7%)	0.347	0.219-0.498
	High school	43 (32.5%)	120 (71.4%)	2.508*	2.132-2.781
	Diploma	19 (14.3%)	0	2.178*	1.871-2.458
	Graduate and above	63 (47.7%)	0	3.217*	2.896-3.456
Occupation	Professional	28 (21.2%)	0	3.154*	2.891-3.345
	Semi-professional	3 (2.2%)	0	2.891*	2.641-3.143
	Skilled	10 (7.5%)	2 (1.1%)	1.145*	0.817-1.415
	Semi-skilled	83 (62.8%)	24 (14.2%)	0.905	0.701-1.116
	Unskilled	8 (6%)	138 (82.1%)	0.634	0.531-0.958
	Unemployed	0	3 (1.7%)	R	
Religion	Hindu	104 (78.7%)	132 (78.5%)	2.176*	1.867-2.317
	Muslim	4 (3%)	27 (16%)	R	
	Christian	24 (18.1%)	9 (5.3%)	3.179*	2.734-3.416
SES (based on BG Prasad classification)	Class I	60 (45.4%)	6 (3.5%)	3.617*	3.025-3.911
	Class II	58 (43.9%)	82 (48.8%)	2.984*	2.41-3.015
	Class III	14 (10.6%)	53 (31.5%)	1.187	0.871-1.431
	Class IV	0	27 (16%)	R	

*-p<0.05 statistically significant, R-reference group, AOR-adjusted odds ratio, 95% CI-Confidence interval.

Table 8: Logistic regression analysis of the socio-demographic variables and their practices towards blood donation

Socio-demographic variable		Good practices (n=100)	Bad practices (n=200)	AOR	95% CI
Age group	10-20	0	4 (2%)	R	
	21-30	20 (20%)	33 (16.5%)	0.781	0.516-0.918
	31-40	48 (48%)	38 (19%)	1.375*	1.115-1.515
	41-50	22 (22%)	102 (51%)	0.861*	0.617-1.126
	51-60	10 (10%)	23 (11.5%)	0.217	0.167-0.318
Gender	Male	75 (75%)	55 (72.5%)	3.245*	2.989-3.983
	Female	25 (25%)	145 (71.4%)	R	
Education	Primary school	0	3 (1.5%)	R	
	Middle school	2 (2%)	50 (25%)	0.217	0.189-0.398
	High school	30 (30%)	133 (66.5%)	2.15*	2.02-2.281
	Diploma	14 (14%)	5 (2.5%)	2.01*	1.871-2.358
	Graduate and above	54 (54%)	9 (4.5%)	2.917*	2.496-3.356
Occupation	Professional	25 (25%)	3 (1.5%)	3.154*	2.891-3.345
	Semi-professional	2 (2%)	1 (0.5%)	2.791*	2.541-3.043
	Skilled	7 (7%)	5 (2.5%)	1.145*	0.637-1.235
	Semi-skilled	60 (60%)	47 (23.5%)	0.725	0.501-0.916
	Unskilled	6 (6%)	140 (70%)	0.584	0.381-0.758
	Unemployed	0	3 (1.5%)	R	
Religion	Hindu	82 (82%)	154 (77%)	1.986*	1.667-2.117
	Muslim	1 (1%)	30 (15%)	R	
	Christian	17 (17%)	16 (8%)	2.379*	2.134-2.616
SES (based on modified BG Prasad classification)	Class I	50 (50%)	16 (8%)	2.917*	2.625-3.211
	Class II	40 (40%)	100 (50%)	2.584*	2.231-2.815
	Class III	10 (10%)	57 (28.5%)	0.887	0.571-1.231
	Class IV	0	27 (13.5%)	R	

*- p<0.05 statistically significant, R-reference group, AOR-adjusted odds ratio, 95% CI-Confidence interval.

Discussions

The overall level of knowledge in the present study towards blood donation was found to be 45% which is almost in part with the community-based study conducted in the city of Mekelle and a study conducted by Yene work Acham Jemberu [15].

However, it is lower than the study conducted among health science students in Addis Ababa (83%) [16].

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The difference in socio-economic status and in educational status with the health science students might explain the discrepancy with the above findings.

Only 34.1% of participants knew that people can donate every 3 months, this is higher than a study done in Benin, (21.5%) but lower than a study conducted at Chennai (51.2%) [17].

The majority of them were able to correctly mention that blood donation will transmit infections to the recipients and not the donors. This is consistent with finding from Chennai but lower when compared to a study conducted among health workers (72.2%), and physicians in Benin (80.7%) [18].

More than half 87.0% of the study subjects knew that blood donation is good for donors health, which is much lower than a study conducted by Yene work Acham Jemberu and another study by Sanayaima DH *et al.* [19].

Age, sex, educational status and source of information were found to be independent predictors of knowledge of blood donation. Male study participants were more knowledgeable towards blood donation which is in line with findings from Karachi and North India [20].

In Indian context, males are more accessible to information and spent most of their time out of their home than females. Having at least high school education was significantly and positively associated with the knowledge of blood donation, which is supported by a study conducted in Sikkim, India [21].

This could be because more educated people might be in a better position to access the media and availability of awareness creation at high school level in educational institutions.

A Study conducted in India and Addis Ababa carried out among health science students showed that knowledge of blood donation was higher as a result of their profession [20]. In the present study also, professionals had a better knowledge.

The composite measure of attitude indicates that only 44% of the respondents had favourable and positive attitudes towards blood donation. This is better than a study conducted in Karachi (42%), however it is lower than similar studies conducted in India (87.3%), Mekelle (61%) and Addis Ababa (68%) [14]. Only less than one half had agreed that their members encourage them for donating blood in the future which is lower than other studies conducted in India and Addis Ababa [19].

The most common reason quoted by our study subjects for not donating blood is fear of health problems followed by lack of opportunity and the same fact has been highlighted by several studies as the most common reason for not donating blood [24].

The present study found that educational status, average monthly income, the source of information, and knowledge were significantly associated with a favourable attitude towards blood donation.

Participants who had higher monthly income were more likely to have a favourable attitude than lower income groups. This might be because those who have higher income may access better information sources.

In the present study 51.8% of respondents had reported at least one history of blood donation which is almost in par with similar studies conducted in Benin, Northern Nigeria, South India, and in Addis Ababa [25]. However, it is higher than other studies carried out in India (13.9%) and Mekelle (12%) [19].

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.

In our study only 44.0% were voluntary donors and it was almost similar to the study done by S Manikandan *et al.* at Chennai and another study done by Jamunarani Srirangaramasamy in South India [26].

The present study also indicates that 45.8% of the study subjects had encouraged others to donate blood and the results are almost similar to the study done at Gujarat [27]. So, when it comes to practice only 25.3% of our study subjects had a good practice towards blood donation.

Global researchers also concluded that people are not donating blood because nobody approached them for donation, lack of information, unfit to donate, a need to donate for a friend or relative in future, fear of needle and knowing their viral status, the donated blood may be sold, non-remuneration, ignorance and their religion [19].

Age, educational status, knowledge and attitude were significantly associated with the practice of blood donation. Older age groups were positively associated with the practice of blood donation. This is similar with findings from the studies conducted in Karachi and Iran [28].

This might be attributed to increased personal experience from donating blood. Having certificate and above educational level was associated with increased practice of blood donation which is Comparable with the study carried out in Addis Ababa [16].

The fact that this study was conducted at the community level could be mentioned as the strength of the study. The nature of cross-sectional study which is not possible to establish cause-effect relationship between the explanatory variables and outcome variables and the possibility of social desirability bias were among the limitations of this study.

Conclusion

The present study shows an average prevalence of knowledge and attitude among the study subjects

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whereas when it comes to practice it was found to be less. Middle aged people, male sex, higher educational standards, professionals and high socio- economic groups had a better knowledge, attitude and practice towards blood donation.

The finding of this study also justified any possible interventions on the independent predictors. There should be a regularly scheduled awareness creation and voluntary blood donation campaigns organized at the community level to utilize potential donors who lack the time and opportunity to donate blood.

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We would like to express our heartfelt gratitude to all the study participants in the study, without them this research would not have been possible. We would like to extend our sincere appreciation to the medical officer Dr. Jebakkani, staffs of urban health centre, Pudupet who has provided us the relevant data and information related to our research work and finally our gratitude also goes to Dr. Rajesh who supervised the design and made critical comments at each step of research.

Author's contribution

Pugazhendiinban collected the data and entered in to the Microsoft office excel worksheet and Deepika performed analysis and interpretation of data and drafted the manuscript. Both the authors read and approved the final manuscript.

The content of the study adds to the existing knowledge

The study provides information about the current practices of blood donation in the selected Community is less and hence awareness is required to provide initiatives to voluntary blood donation and it is essential to improve the knowledge and attitude about blood donation among this community members by improving the educational level as there was a significant association between knowledge, attitude and practice on blood donation and educational level. Thus, this study will help to create a blood donor registry in the future to meet the needs of the recipients.

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