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Original Article

Assessment of Attitude of blood donors and myth and misconception for promoting their Motivation and Retention

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ABSTRACT

Introduction: Blood transfusions can improve a patient's health and save lives, but many patients do not have timely access to safe blood. Replacement or paid donors make up over half of the blood supply in many countries, but voluntary non-remunerated blood donation (VNRBD) is the safest.
Objective: This study assesses the attitude of blood donors and analyzes myths, misconceptions, and motivational factors to promote regular voluntary donation.
Material and Methods: This cross-sectional prospective study involved 1550 healthy blood donors recruited over 12 months at the Department of Transfusion Medicine, KGMU Lucknow. A pre-tested validated questionnaire assessed attitude (9 questions), myths and misconceptions (16 questions), and motivation factors (10 questions). Participation was voluntary with assured confidentiality. Data were analyzed using SPSS version 23 with appropriate statistical tests, including T-test and chi-square, applied for descriptive and inferential analyses.
Results: 52% of respondents voluntarily donated blood 54% preferred mobile van donation.45% considered blood donation a national duty. Common motivational factors included testing for infectious diseases (57.9%) and appeals via media or famous persons (55.4%).Many misconceptions persist, such as blood donation leading to weight loss (61.5%), infection risks (56.3%), infertility (52.8%), weakness/anemia (53.0%), and accelerated aging (53.6%).Positive attitude correlated significantly with age, sex, occupation, religion, marital status, and education.Female donors and older age groups showed more negative attitudes.
Conclusion: Less than half of the respondents donated previously, indicating low awareness. Among donors, retention was low, with approximately half donating only once. Awareness on blood groups, age and weight eligibility, and inter-donation intervals was generally low. The findings suggest a need to improve donor recruitment and retention strategies, including education on benefits and dispelling myths to build a sustainable voluntary blood donor base.

Keywords*: Blood Donation, Voluntary Non-Remunerated Blood Donation, Attitude, Myths and Misconceptions, Donor Motivation, Donor Retention.*

INTRODUCTION

Blood transfusions improve patient health and save lives, yet many patients lack access to safe blood timely. Replacement or paid donors provide more than half of the blood supply in most countries. Adults are an important source not only for blood but for spreading health awareness. Voluntary non-remunerated blood donation (VNRBD) is the safest form. Replacement donors have higher rates of infections such as HIV, HBsAg, HCV, and syphilis compared to VNRBD donors. Perceptions of voluntary donation are influenced by socio-demographic variables and knowledge. Fear for personal safety is a major deterrent to donating blood

However, replacement or paid donors account for more than half of the blood supply in the majority of countries. Adults are a potential source of great interest, not only because of the blood they could provide, but also because of the information

on the subject of "giving blood," which could promote the spread of healthy lifestyles and increased awareness of one's own health, as well as contribute to the development of the population.[1] The safest type of blood donation is voluntary non-remunerated blood donation (VNRBD). Replacement blood donors have higher HIV, HBsAg, HCV, and syphilis seropositivity than VNRBD donors.[2] The general public's perceptions of voluntary blood donation could be influenced to a large extent by socio-demographic variables of knowledge. The safety of an individual is a major factor that deters them from donating.[3]

MATERIALS AND METHODS

The aim of this study was to assess the attitude of blood donors by questionnaire regarding blood donation process and myths and misconceptions related to it and to analyse factors which will motivate donors to becomes regular voluntary blood donors.

A cross-sectional prospective study was done on 1550 healthy blood donors and was based on a well-structured validated and pre-tested questionnaire. All the donors who fulfilled the criteria as per drug and cosmetic act 2020 were recruited in the study in department of transfusion medicine KGMU Lucknow over a span of 12 month.

Brief description was given to the participants about the objective of this study and confidentiality in collection of personal data was assured. All the relevant data so collected was entered in the master chart and analyzed using appropriate statistical procedure and software (SPSS) version- 23. Descriptive statistical evaluation and statistical significance was evaluated by T-test/ chi-square test as applicable. In our study 9 questions to assess attitude,16 questions to assess myths and misconception; and 10 questions to assess motivation in blood donors to become regular blood donors.

RESULTS

The donors were told about the study being undertaken and were assured of proper confidentiality of their answers. They were told about the basic model of the study and the kind of questions they were to be asked. After confirming that they completely understood the study they were going to be a part of, their consent was taken and proper signature of the participant was taken. Thereafter, they were provided with the prepared questionnaire and each response was noted. All the responses were compiled and the following observations were noted:

Table – 1: Distribution of Cases according to Demographic Variables

Variable		No.	%
Age	18 - 30 yr	625	40.3
	31 - 40 yr	349	22.5
	41 - 50 yr	230	14.8
	51 - 60 yr	287	18.5
	> 60 yr	59	3.8
Sex	Male	1139	73.5
	Female	411	26.5
Occupation	Business	90	5.8
	Farmer	117	7.5
	Govt Job	325	21.0
	Pvt Job	342	22.1
	Housewife	290	18.7
	Professional	32	2.1
	Unemployed	265	17.1
	Student	89	5.7
RELIGION	Hindu	1328	85.7
	Muslim	222	14.3
Marital Status	Married	1087	70.1
	Unmarried	463	29.9
Education	Illiterate	420	27.1
	High School	187	12.1
	Intermediate	178	11.5
	Graduate	765	49.4

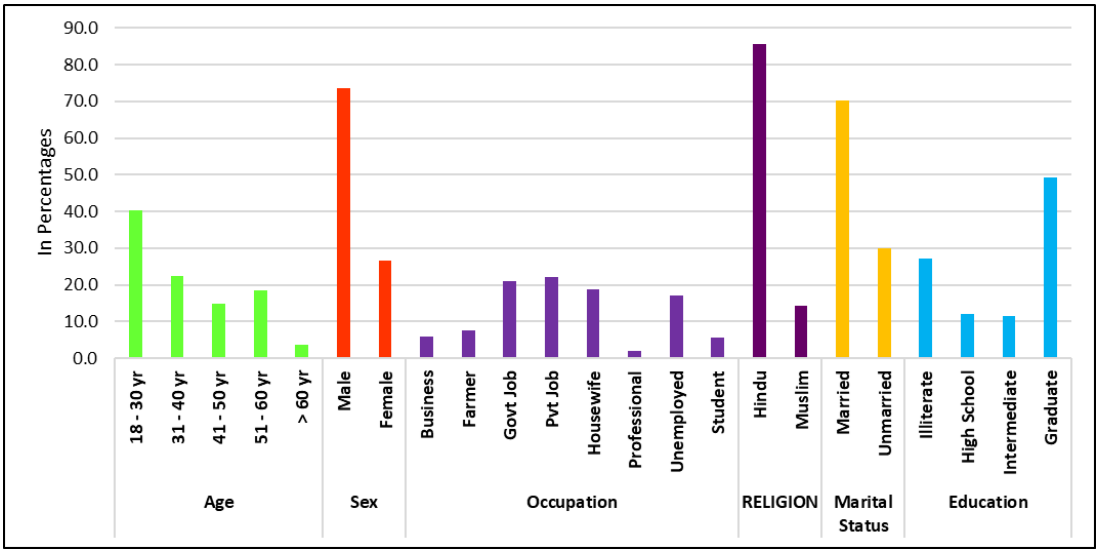

Fig no. 2- Bar graph showing distribution of cases according to various demographic variables

In Table no. 1, Majority of the respondents belong to the age group 18-30 yr (40.3%) followed by the age group 31-40yr (22.5%). This shows that the major target population for the government agencies should be the younger population especially the college going population as they can be nicely motivated to become regular donors and they will be providing a good number of donors for a long duration till they reach 65 years of age. Among them 73.5% were males while 26.5% were females which indicates that the general notion is that males are healthier and are more likely to donate blood than the female population. The major occupations were Government Job (21.0%) and Private Job (21.1%). Out of 1550 respondents, 85.7% were Hindus and 14.3% were Muslim. This proportion is almost similar to the general proportion of Hindus and Muslims in the population. The proportion of married and unmarried was 70.1% & 29.9% respectively. Further majority of cases were graduates (49.4%) followed by illiterate (27.1%). This implies that education in general does have a positive impact on the willingness of the population to donate blood.

Table – 2: Distribution of Cases according to Attitude about Blood Donation

Attitude		No.	%
Have you donated blood voluntarily	No	716	46.2
	Yes	806	52.0
	Not sure	28	1.8
Do you prefer donating blood in mobile van	No	665	42.9
	Yes	837	54.0
	Not sure	37	2.4
	wrong answer	11	.7
Do you think blood donation is a National duty	No	690	44.5
	Yes	700	45.2
	Not sure	111	7.2
	wrong answer	49	3.2
Do you think blood donation is a Religious duty	No	746	48.1
	Yes	662	42.7
	Not sure	101	6.5
	wrong answer	41	2.6
Is blood donation good for health	No	646	41.7
	Yes	822	53.0
	Not sure	59	3.8
	wrong answer	23	1.5
Would you like to donate blood in future	No	696	44.9
	Yes	810	52.3
	Not sure	44	2.8
If no why	AFRAID	242	15.6
	AOR	177	11.4
	ILL	259	16.7
Would you like to donate blood to only family members /friends	No	659	42.5
	Yes	783	50.5
	Not sure	80	5.2
	wrong answer	28	1.8

Would you like to donate blood to strangers in need of blood	No	773	49.9
	Yes	642	41.4
	Not sure	85	5.5
	wrong answer	50	3.2

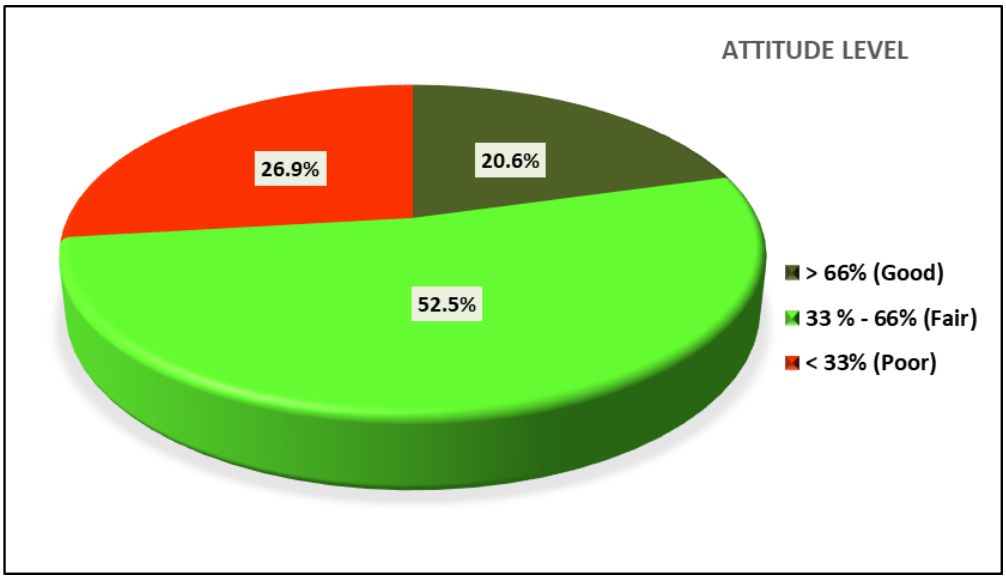

Fig no. 1- Pie chart showing attitude level of participants

Table no. 2 shows that out of 1550 respondents, 52.0% donated blood voluntarily, 54.0% preferred donating blood in mobile van and 45.0% felt that blood donation is a national duty. The general attitude of the respondents towards blood donation seemed positive. The number of voluntary donors was only half on the respondents. This percentage if extrapolated to the total population of India points toward one of the reasons as to why there is continuous shortage of blood and blood products at most of the blood centers; this shortage can easily be overcome if the number of voluntary blood donors increase. Other attitude items showing positivity among more than 50% people were 'blood donation is good for health' (53.0%), would like to donate in future (52.3%), would like to donate blood only to family members/relatives (50.5%)

Table – 3: Distribution of Cases according to Motivation regarding blood donation

Variable		No.	%
donating blood to help family or friend in need by your donation	No	686	44.3
	Yes	782	50.5
	Not sure	64	4.1
	wrong answer	18	1.2
donate blood to get Money/gift/fruity/ refreshment after blood donation	No	728	47.0
	Yes	743	47.9
	Not sure	50	3.2
	wrong answer	29	1.9
donate blood to get your HIV/Hepatitis/ syphilis malaria status tested	No	557	35.9
	Yes	897	57.9
	Not sure	87	5.6
	wrong answer	9	.6
donate blood on appeals done on radio, television or by famous person	No	609	39.3
	Yes	858	55.4
	Not sure	64	4.1
	wrong answer	19	1.2
It is ok to get reminder to donate when there is a shortage of blood in blood center	No	761	49.1
	Yes	662	42.7
	Not sure	68	4.4
	wrong answer	59	3.8

Table no 3 shows that out of 1550 respondents, 50.5% accepted that 'donating blood to help family or friend in need' was a major motivation factor. This group of donors comprise the replacement donors who constitute the major percentage of donors. Targeting this group can push them towards becoming regular voluntary donors. The motivations showed by more

than 50% people were 'donate blood to get your HIV/Hepatitis/syphilis malaria status tested' (57.9%) and donate blood on appeals done on radio, television or by famous person (55.4%).

Table – 4: Distribution of Cases according to Knowledge of blood donors regarding myths and misconceptions in regular blood donation

Variable		No.	%
blood donation a painful procedure	No	636	41.0
	Yes	885	57.1
	Not sure	29	1.9
Diabetic person can donate blood	No	616	39.7
	Yes	742	47.9
	Not sure	136	8.8
	wrong answer	56	3.6
Blood donation lead to weight loss	No	536	34.6
	Yes	954	61.5
	Not sure	49	3.2
	wrong answer	11	.7
There is risk of getting infections like HIV, Hepatitis, malaria syphilis from donation	No	615	39.7
	Yes	872	56.3
	Not sure	46	3.0
	wrong answer	17	1.1
donors can donate blood after taking antibiotics	No	710	45.8
	Yes	670	43.2
	Not sure	108	7.0
	wrong answer	62	4.0
donors can donate blood after taking pain killers	No	706	45.5
	Yes	631	40.7
	Not sure	176	11.4
	wrong answer	37	2.4
Can participate in sports/ other physical activities after blood donation	No	706	45.5
	Yes	774	49.9
	Not sure	57	3.7
	wrong answer	13	.8
think that there is limited blood in body and you will get unhealthy after donation	No	660	42.6
	Yes	787	50.8
	Not sure	82	5.3
	wrong answer	21	1.4
think that overweight people are healthier and have more blood volume to donate	No	571	36.8
	Yes	898	57.9
	Not sure	50	3.2
	wrong answer	31	2.0
think that blood can be manufactured artificially	No	795	51.3
	Yes	668	43.1
	Not sure	57	3.7
	wrong answer	30	1.9
blood can be stored forever	No	738	47.6
	Yes	663	42.8
	Not sure	95	6.1
	wrong answer	54	3.5
donations from international travelers accepted	No	606	39.1
	Yes	760	49.0
	Not sure	123	7.9
	wrong answer	61	3.9
think that blood donation will lead to infertility	No	646	41.7
	Yes	818	52.8
	Not sure	56	3.6
	wrong answer	30	1.9
think that blood donation will lead to weakness/anemia	No	601	38.8
	Yes	821	53.0
	Not sure	100	6.5
	wrong answer	28	1.8

think that blood donation will lead to fainting	No	700	45.2
	Yes	814	52.5
	Not sure	18	1.2
	wrong answer	18	1.2
think that blood donation will lead to accelerated ageing	No	662	42.7
	Yes	831	53.6
	Not sure	39	2.5
	wrong answer	18	1.2

As shown in table no. 4, we can see that out of 1550 respondents, 57.1% believed that blood donation is a painful procedure. This is a relatively high percentage and proper counselling along with good behaviour of the staff during and after the donation process can alleviate the fear of needles in the population. The myths and misconceptions showed by more than 50% people were 'blood donation leads to weight loss' (61.5%), 56.3% believed that there is a risk of getting infections like HIV, Hepatitis, 57.9% think that overweight people are healthier and have more blood volume to donate, 52.8% believe that blood donation will lead to infertility,53% think that blood donation will lead to weakness/anaemia, 52.5% think that blood donation will lead to fainting, while 53.6% believed that blood donation will lead to accelerated ageing. Some of the myths like fainting and weakness which may be seen in some donors may lead to apprehension among them, and these must be tackled so that the fear may be addressed.

Table – 5: Distribution of Cases according to Factors which will motivate blood donors to becomes regular voluntary blood donors

Variable		No.	%
know that blood donation will decrease your cholesterol levels which is a risk factor to heart decease	No	708	45.7
	Yes	672	43.4
	Not sure	130	8.4
	wrong answer	40	2.6
motivate your parents/seniors/friends/peer group to donate blood	No	582	37.5
	Yes	911	58.8
	Not sure	51	3.3
	wrong answer	6	.4
know that after blood donation blood testing will be done free of cost on your blood	No	661	42.6
	Yes	852	55.0
	Not sure	18	1.2
	wrong answer	19	1.2
think that good attitude of staff will motivate you for repeat blood donation	No	602	38.8
	Yes	844	54.5
	Not sure	69	4.5
	wrong answer	35	2.3
know that new red cells start forming after blood donation	No	537	34.6
	Yes	1013	65.4

In table no. 5, Out of 1550 respondents, 43.4% know that blood donation will decrease your cholesterol levels which is a risk factor to heart decease. The motivations factors showed by more than 50% people were 'motivate your parents/seniors/friends/peer group to donate blood' (58.8%), 'know that after blood donation blood testing will be done free of cost on your blood' (55.0%), 'think that good attitude of staff will motivate you for repeat blood donation' (54.5%) and 'know that new red cells start forming after blood donation' (65.4%). All these factors are good motivating factors and a person who might come as a replacement donor for the first time might be persuaded to donate again after understanding these benefits of blood donation.

Table – 6: Association of Attitude Level with Socio-Demographic Variables

Variable		Attitude Level						chi sq		p-value
		< 33%		33 % - 66%		> 66%				
		N	%	N	%	N	%			
Age	18 - 30 yr	199	31.8%	313	50.1%	113	18.1%	88.44		<0.001
	31 - 40 yr	76	21.8%	185	53.0%	88	25.2%			
	41 - 50 yr	29	12.6%	119	51.7%	82	35.7%			
	51 - 60 yr	86	30.0%	164	57.1%	37	12.9%			
	> 60 yr	27	45.8%	32	54.2%	0	0.0%			
SEX	Male	274	24.1%	629	55.2%	236	20.7%	19.25		<0.001
	Female	143	34.8%	184	44.8%	84	20.4%			
occupation	Business	9	10.0%	59	65.6%	22	24.4%	134.68		<0.001

	Farmer	51	43.6%	28	23.9%	38	32.5%			
	Govt Job	88	27.1%	185	56.9%	52	16.0%			
	Pvt Job	104	30.4%	176	51.5%	62	18.1%			
	Housewife	105	36.2%	111	38.3%	74	25.5%			
	Professional	0	0.0%	17	53.1%	15	46.9%			
	Unemployed	41	15.5%	177	66.8%	47	17.7%			
	Student	19	21.3%	60	67.4%	10	11.2%			
RELIGION	Hindu	345	26.0%	693	52.2%	290	21.8%	9.46		0.009
	Muslim	72	32.4%	120	54.1%	30	13.5%			
MARRIED	Married	295	27.1%	540	49.7%	252	23.2%	16.77		<0.001
	Unmarried	122	26.3%	273	59.0%	68	14.7%			
Education	Illiterate	99	23.6%	213	50.7%	108	25.7%	20.91		0.002
	High School	50	26.7%	104	55.6%	33	17.6%			
	Intermediate	55	30.9%	76	42.7%	47	26.4%			
	Graduate	213	27.8%	420	54.9%	132	17.3%			

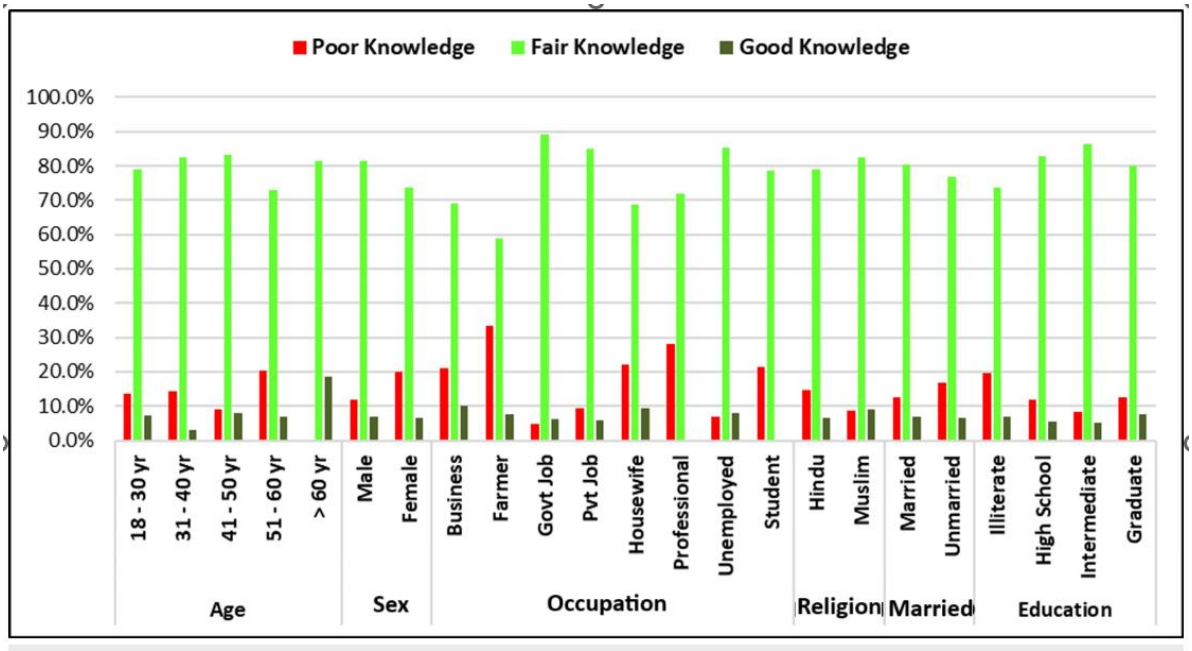

Fig no 2- Bar graph showing association of attitude level among the participants according to various socio-demographic variables

As seen in fig no 1 we can see that the attitude was more or less fair (33%-66%) among all age groups. Highest percentage of participants having good attitude towards voluntary blood donation was seen in the age group of 41-50 years (35.7%). While the highest percentage of participants showing poor attitude belonged to the age group of >60 years (45.8%). Females had higher percentage of participants having poor attitude (34.8%) than males (24.1%). Among the various occupations, farmers had the highest number of participants with poor attitude (43.6%) while the professionals had the highest percentage of participants with good attitude toward voluntary blood donation (49.6%). More percentage of Muslims (32.4%) had poor attitude toward blood donation than Hindus (26%). Percentage of participants having fair attitude towards blood donation was almost similar amongst Hindus and Muslims. Attitude amongst the married participants was better than the unmarried participants. Attitude levels amongst the participants were more or less similar in different education groups.

Summing up, table no.10 indicates that the attitude level showed significant association with Age ($p<0.001$), sex ($p<0.001$), occupation ($p<0.001$), religion($p<0.009$), marital status ($p<0.001$) and education ($p=0.002$).

DISCUSSION

In our study Out of 1550 respondents, 52.0% donated blood voluntarily and they donate blood at regular time interval. Study by Amit Agrawal et al showed 84% men had donated previously while only 13% women had donated previously. However, in a study done by salami et al only 30.1% respondents had donated blood previously. Studies done by Durgesh et al[5] and Sushant et al[6] showed that 47.7% and 43.3% respectively had donated blood previously. 54.0% preferred donating blood in mobile van and 45.0% think that blood donation is a national duty. Other attitude items that showed positivity among more than 50% people were 'blood donation was good for health' (53.0%), likely to donate in future (52.3%), likely to donate blood to only family members/relatives (50.5%). The attitude level showed significant association with Age ($p<0.001$), sex ($p<0.001$), occupation ($p<0.001$), religion($p<0.009$), marital status ($p<0.001$) and education ($p=0.002$).

Study done by Abdulla et al showed that 86 percent donated blood because it was a healthy habit while 45% did it for altruism. Study done by salami et al showed that 44% of respondents had a positive feeling regarding blood donation procedure followed in blood bank. 57.8% respondents had a positive attitude toward blood donation in a study done by Dawit et al[7]. 79.3% respondents in the study done by Durgesh et al[5] felt a moral satisfaction and social responsibility for blood donation. Study done by Limaye et al[8] showed a very positive result with 95% of respondents having a good attitude towards blood donation. 94.6% participants of the Sushant Kumar KAP study felt that donating blood is a good practice. In a study done by Vijay Kumar et al 62.6% non-donors showed a positive attitude by expressing willingness to donate blood if they were approached.

Fear of needles (57.1%) was the most common reason for not donating blood brought out during this study, and this value was much higher in the People's Republic of China (44%). Study by Aslami et al showed that fear from donation process or needle was the most common barrier for donation among donors (16%) while health reasons were the main barrier for donation among non-donors (47.2 %). Fear of not being fit to donate (26.8%) was the second most common reason for not donating blood brought out in this study, whereas this was lower in respondents from Lucknow in India (6.75%). This fear was more in respondents from Moldova (60 %), the People's Republic of China (63.2%), and Chile (64.2%). Fear of physical harm/weakness (53.0%) was the third most common reason for not donating blood brought out during this study, which was higher than observed in respondents from Lucknow (9.25%). This fear was even higher in respondents from Bangladesh (50%) and the People's Republic of China (90.1%). The myth of contracting infection (HIV or other) was a lot less in this study (56.3%), whereas it was higher in respondents from Chile (73.4%). Studies done in Togo (31.7%), Tanzania (52.3%), Nigeria (52.4%) showed similar results. "No one ever asked us to donate blood" was reported by a lower number of respondents in this study (9.8%), whereas this was higher in respondents from Lucknow (40.7%), Moldova (40%), Saudi Arabia (42.6%), and Pakistan (51.6%). This agrees with the VBD movement in this region, as this was one of the regions where pioneering work on VBD was started in India. The myths and misconceptions showed by more than 50% people were 'blood donation leads to weight loss' (61.5%), there is risk of getting infections like HIV, Hepatitis (56.3%), overweight people are healthier and have more blood volume to donate (57.9%) and blood donation will lead to infertility (52.8%). Responders think that blood donation will lead to weakness/anemia (53.0%), fainting (52.5%) and accelerated ageing (53.6%). Study done by Durgesh et al also showed that the commonest reason for not donating blood was being declared medically unfit (69%). While in the study done by Irumi Gilani et al[9], the reason for not donating blood was that 'no one ever asked them to do so', which was the common response in 40% doctors and 63.3% paramedics. Sonam Kumari et al[5] had an interesting finding amongst donors, 3.33% donors did not want to donate blood in the future because of unpleasant experience of previous blood donation.

The proportion of good (>66%), fair (33%-66%) and poor (<33%) attitude level among the study participants was found to be 20.6%, 52.5% and 26.9% respectively.

The study supports the view that despite sociodemographic, interregional differences whether across or within the countries, there may be some common themes that could facilitate or hinder blood donation as observed by the authors of the review of KAP studies from the developing countries. Nevertheless, such differences in regional donor demographic reasons need to be identified by conducting KAP survey on blood donation to plan and execute blood donor recruitment.

The 52% voluntary donation rate indicates moderate awareness. The study aligns with previous findings showing variations in donation prevalence and attitudes regionally. Fear of needles was the most common barrier, much higher than in some other countries, followed by fear of being unfit and physical weakness. Myths about infections and health effects are prevalent, requiring targeted education and counseling. Motivational strategies like friendly staff attitudes, free testing, and social encouragement are effective. The study supports the idea that despite demographic differences, common themes influence donor attitudes and behaviors across regions

Blood donor motivation, recruitment, and retention strategies should be more specific and focus on the myths and misconceptions prevalent in the donor demographic area[10,11].

CONCLUSION

Less than half of the respondents had donated blood previously which indicated a very low level of awareness regarding blood donation. Among the previously donated participants, half had done it only once which further indicated a very low level of donor retention in the area. A little more than half of the respondents in this study were aware of their blood groups while less than half were aware of the universal blood group. Only a small proportion of the participants knew about the minimum and maximum age limits required for blood donation. Around half of the participants were aware of the minimum weight requirement for blood donation. Less than half were aware of the minimum inter-donation interval required for males and females. Another interesting finding in this study was that majority of the respondents knew that a 'smoker can donate blood'. This indicated that most of the respondents had below average knowledge regarding blood donation. The rate of donor recruitment and retention was quite low in this area. Further improvements in the techniques used by the blood centres for the same is required to increase the donor population.

DECLARATIONS

Conflicts of interest: There is no any conflict of interest associated with this study

Consent to participate: There is consent to participate.

Consent for publication: There is consent for the publication of this paper.

Authors' contributions: Author equally contributed the work.

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