ORIGINAL ARTICLE

Assessment of Beliefs, Behaviors and Opinion About Blood Donation in Etawah District, Uttar Pradesh, India : A cross sectional study

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ABSTRACT

Background: Blood donation is a critical component of modern healthcare, saving millions of lives annually worldwide. Despite its importance, many regions—including rural areas in India—face a chronic shortage of blood supplies. Factors such as socio-demographic characteristics, cultural beliefs, awareness, and motivation all influence the willingness to donate blood. Community-based studies help in understanding population-level perspectives and barriers to voluntary blood donation in specific settings. **Aim & Objective**: To assess the beliefs, behaviors, and opinions of the public towards blood donation. **Settings and Design**: In Etawah, this community-based cross-sectional survey conducted between June and August 2022. **Material& Method**: Technique of random sampling was applied. Employing a semi-structured questionnaire, data has been collected. **Result**: 87.6% of participants thought that blood donation may save lives, and majority (82.6%) thought it was an essential act. A total of 27.8% of participants were willing to give blood voluntarily, and 35.4% of participants accepted receiving blood from voluntary donors. **Conclusion**: The participant's motivation, beliefs, and opinions toward blood donation were positive. The majority of them also thought that giving blood may save lives and that it was a significant action.

KEYWORDS

Blood Donation; Attitude; Motivation.

INTRODUCTION

Blood is a vital and life-saving component of healthcare. Blood transfusions play a crucial role in managing trauma, surgical procedures, anemia, malignancies, and obstetric emergencies. Despite advancements in medical technology, there's no alternative to human blood, making voluntary blood donation a cornerstone of healthcare systems globally. (1)

About 118.5 million blood donations are made annually globally, as per World Health Organization (WHO), with high-income nations—which make up only 16% of world's population—contributing 40% of these contributions .(2) Low- and middle-income countries (LMICs), including India, face a chronic shortfall in blood supply due to inconsistent donation practices and lack of public awareness .(3) The WHO claims that blood collection must be predicated on voluntary non-remunerated blood donations (VNRBD), which are considered most sustainable and secure method of ensuring adequate blood availability.(4)

In India, although the national blood policy promotes VNRBD, the proportion of voluntary

donors remains inadequate. The National AIDS Control Organization (NACO) states that India collects about 11 million units of blood annually, falling short of the estimated demand of 13.5 million units .(5) Studies across India have shown that myths, misconceptions, fear of weakness, and lack of knowledge are significant barriers to blood donation .(6–8) Additionally, the influence of social norms, education level, and peer encouragement contributes in shaping person's willingness to donate .(9,10)

Several Knowledge, Attitude, and Practice (KAP) studies have highlighted the importance of socio-demographic factors in determining people's approach to blood donation. For instance, higher education and urban residence have been associated with a more favorable attitude and better knowledge about blood donation .(11,12) However, data from rural populations, especially from regions like Etawah in Uttar Pradesh, are sparse. The rural community people are able to promote voluntary blood donation. There hasn't been any research done in this area to evaluate public attitudes, perceptions, and behaviors around blood donation. Therefore, investigation goal was to evaluate public's attitudes, opinions, & behaviors on blood donation and promote voluntary blood donation.

Aim & Objective: To assess beliefs, behaviors & opinion about blood donation of public towards blood donation in Etawah district of Uttar Pradesh.

Material & Methods

In field practice area of the Department of Community Medicine at Uttar Pradesh University of Medical Science Saifai, India, current community-based cross-sectional investigation was performed from July to October 2023.The field practice area comprises of four villages Ujhiyani ,Geenja , Baghuiya , Lachwai with a population of 6,135.
Sample size estimation- Sample size (N) was derived from the earlier study .(13) and computed as follows:

where d represents "desired degree of accuracy or tolerated margin of error (5%; 0.05), q = (1 – p), p denotes prevalence rate of blood donors (0.365), z represents level of confidence according to normal standard distribution that corresponds to 95% confidence interval (z = 1.96), and N represents minimum sample size. Following equation is obtained by entering these values into formula":
$N = (1.96)^2 \times 0.36 \times (1-0.36) / (0.05)^2 = 356$.
Therefore, N = 356

Participant were selected by systematic random sampling from each of the village. Field practice area comprises of four village , 89 participant from each village were taken. Gram Pradhan/Gram Panchayat Secretary of selected village will be contacted and line listing of all houses/families will be taken. Sampling interval (k) is calculated by dividing total number of houses/ families of selected villages by total number of sample from selected village. On reaching the selected village, a pencil was dropped at the centre of the village/colony, the direction of the tip of the pencil will then be selected as starting point of the survey in the village/colony and then on the left hand side of the colony the house which came first in this direction was enrolled as first house , method. Next house was selected at interval of 'k' from first house and so on and continued until the calculated target off 89 study subjects in each village was achieved. Then after explaining the study subject about the study in details, informed and written consent was obtained from them, after that the study subject was selected as per the inclusion criteria. If any house had more than one eligible study subjects, then only one among them was selected randomly by lottery. A participant were recruited for the study after obtaining informed consent.

Inclusion criteria-
Resident above 18 years old.
Individuals who provide informed consent

Exclusion criteria: Individuals with known contraindications to blood donation (e.g., anemia, chronic diseases, recent surgery)
Pregnant or lactating women
Individuals below 18 years of age
Individuals who have donated blood in the past three months (or as per national/local guidelines)

Data Analysis- Analysis of data was conducted using IBM SPSS 25.
Ethical Issue- The approval of Institutional Ethical Committee was taken before starting the study.

Results

Table 1 depicts that majority of participants (74.7%) were aged over 30 years, indicating that older adults constituted the dominant demographic in the study. Females (56.7%) outnumbered males (43%), showing higher female participation. A significant proportion of participants were married (83.4%), and 58.4% had education only up to high school level. Half of the participants (50%) were unemployed, with only 6.5% being students.

Table 1: Socio-demographic profile of the study participants

Sociodemographic of participant n=356				
S.no	Characteristics	Description	Frequency	Percentage
1	Age in years	18-29 years	90	25.3 %
		>30 years	266	74.7%
2.	Gender	Male	154	43%
		Female	202	56.7%
3.	Marital status	Married	297	83.4%
		Single	59	16.6%
4.	Level of education	Upto the level of high school	208	58.4%
		Above the level of high school	148	41.6%
5.	Employment status	Employed	155	43.5%
		Student	23	6.5%
		Unemployed	178	50%

Table 2 shows that strong positive attitude toward blood donation was observed, having 82.6% participants considering it an important act and 87.6% acknowledging its life-saving potential. However, only 35.4% were open to receiving blood from voluntary donors, and just 27.8% were willing to donate as volunteers, suggesting reluctance toward voluntary donation. Encouragingly, 71.1% declared their intention to make a future donation, and 67.4% viewed it as a national duty. The preference to donate mainly for family and friends 72.2%.

Table 2: Public Beliefs, Behaviors, and Opinions About Blood Donation (n=356)

S.no	Statement	Response	Frequency	Percentage (%)
1.	"Do you think that blood donation is an important act?	Yes	294	82.6%
		No	62	17.4%
2.	Do you think donating blood can save lives ?	Yes	312	87.6%
		No	44	12.4%
3.	Do you accept blood donation from other (volunteers) ?	Yes	126	35.4%
		No	230	64.6%
4.	Will you donate the blood in the future ?	Yes	253	71.1%
		No	101	28.9%
5.	Do you think blood donation is national duty ?	Yes	240	67.4%
		No	116	32.6%
6	What will be your reason for donating ?	As a volunteer	99	27.8%
		For family and friends"	257	72.2%

Table 3 depicts that a significant majority (81.5%) believed that blood may only be donated once a year, which is incorrect. Preferences for donation location favoured the home (58.7%) over the blood bank (40.2%), likely due to comfort and convenience. Only 43% correctly believed that all blood types could donate, while over half (56.5%) admitted not knowing, indicating a need for awareness campaigns. Notably, 99.7% supported paid incentives for donors, highlighting a strong inclination toward extrinsic motivation.

Table 3 : : Beliefs and Preferences Related to Blood Donation Practice

S.no	Statement	Response	Frequency	Percentage(%)
1.	"How many times can a person donate blood per year ?	One time a year	290	81.5%
		Two time a year	66	18.5%
		Three time a year	-	-
2.	If you agree to donate the blood, where do you prefer to donate ?	Blood bank	143	40.2 %
		Residence	209	58.7%
		Workplace	5	1.1%
3.	According to your knowledge, can people with any blood type donate blood?	Yes	153	43%
		No	2	0.6%
		I don't know	201	56.5%
4.		Yes	355	99.7%

S.no	Statement	Response	Frequency	Percentage(%)
	Do you agree that blood donors should be paid to promote blood donation?	No”	1	0.3%

Table 4 shows that social influence from family and friends was low, with only 28.1% reporting encouragement to donate. However, practical incentives appeared influential: 70.2% would donate if granted leave from work, and 71.9% felt a sense of personal contribution when donating. A near-universal consensus (99.4%) favoured providing tokens or incentives to donors.

Table 4 Social Influences and Motivational Factors for Blood Donation

S.n	“Variables	Response	Frequency	Percentage (%)
1	Do family and friends consider blood donation as an important and valuable act and encourage you to donate ?	Yes	100	28.1 %
		No	256	71.9%
2.	Would you donate blood if given a leave from work ?	Yes	250	70.2%
		No	106	29.8%
3.	Does donating blood make you feel like you have helped your family members or friends?	Yes	256	71.9%
		No	100	28.1%
4.	Do you agree that a token should be given to donors as a motivational factor?	Yes	354	99.4%
		No”	02	0.6%

Table 5 depicts that statistically significant associations were found between favorable attitudes toward blood donation and factors such as age, education, and employment status.(p <0.05) Younger participants(18 to 29years) has higher proportion of favorable attitudes (92.2%) compared to older participants. (63.9%) Those with education beyond high school (98.6%) were more positive in comparison to those with education up to high school. Employment status also played a role, with 82.6% of employed individuals showing favorable attitudes. Gender and marital status, however, were not significantly associated with attitudes.

Table 5 Cross-tabulation of Demographic Characteristics with Beliefs, Behaviors, and Opinions on Blood Donation

		Number of respondents	Unfavourable response	Favourable response	P-value
Age	18-29 years	Respondent	07	83	<0.05
		% within age	7.8%	92.2%	
		%within attitude categories	6.8%	32.8%	
	>30 years	Respondent	96	170	<0.05
		% within age	36.1%	63.9%	
		%within attitude categories	93.2%	67.2%	
Gender	Male	Respondent	21	133	0.98
		% within gender	13.6%	86.4%	
		%within attitude categories	20.4%	52.6%	
	Female	Respondent	82	120	
		% within gender	40.6%	59.4%	
		%within attitude categories	79.6%	47.4%	
Marital status	Married	Respondent	86	211	0.98

		Number of respondents	Unfavourable response	Favourable response	P-value
		% within marital status	29%	71%	
		%within attitude categories	83.5%	83.4%	
	Single	Respondent	17	42	
		% within marital status	28.6%	71.2%	
		%within attitude categories	16.5%	16.6%	
Education status	Upto High school	Respondent	101	107	<0.05
		% within education level	48.6%	51.4%	
		%within attitude categories	98.1%	42.3%	
	Above the level of high school	Respondent	216	146	
		% within education level	1.4%	98.6%	
		%within attitude categories	1.9%	57.7%	
Employment status	Employed	Respondent	27	128	<0.05
		% within employment status	17.4%	82.6%	
		%within attitude categories	26.2%	50.6%	
	Unemployed	Respondent	75	103	
		% within employment status	42.1%	57.9%	
		%within attitude categories	72.8%	40.7%	
	Student	Respondent	27	128	
		% within employment status	17.4%	82.6%	
		%within attitude categories	26.2%	50.6%	

DISCUSSION

The cross-sectional research evaluated behaviors, beliefs, and opinions concerning blood donation among 356 participants in rural areas of Etawah district. The findings show that a majority of participants had positive perception, with 82.6% recognizing blood donation as important and 87.6% agreeing it could save lives. This aligns with earlier studies from both urban and semi-urban areas in India, where awareness regarding significance of blood donation was high .(6,14)Despite high levels of perceived importance, only 27.8% of participants were willing to donate voluntarily. This gap between awareness and actual willingness to donate reflects persistent myths, lack of motivation, and social influences—challenges commonly documented in rural populations .(8,15) Only 35.4% of participants were open to receiving blood from voluntary donors, further reflecting mistrust and misinformation regarding the safety of blood transfusion .Knowledge-related questions revealed that 81.5% incorrectly believed that one can donate blood only once a year, and over half (56.5%) did not know whether all blood groups are eligible for donation. These findings mirror results from other rural KAP studies, underscoring the need for targeted education programs .(16,17) Regarding motivation, practical and emotional incentives had a notable influence: 70.2% of respondents were willing to donate if granted leave from work, and 99.4% supported providing tokens of appreciation. Studies have shown that non-financial incentives and workplace flexibility significantly boost blood donation participation, especially in resource-limited settings .(18–20) Additionally, 71.9% reported they would donate blood if it could help their family and friends, indicating the role of personal relationships in shaping altruistic behaviors.

Sociodemographic variables were found to influence attitudes significantly. Younger participants (18–29 years), those with higher education, and employed individuals exhibited more favorable attitudes towards blood donation. These findings are consistent with other Indian and international studies suggesting that higher educational attainment and occupational status positively correlate with voluntary blood donation .(10,12,21) Interestingly, gender and marital status were not significantly associated with donation attitudes in this study, a result similar to some previous studies, although contradictory findings have been reported elsewhere .(22,23) This indicates that demographic influence may vary by region and cultural context, reinforcing the need for localized strategies.

Strengths: Community based study was conducted in real-world rural settings, making the findings highly relevant for public health planning in similar regions. A scientifically calculated sample size of 356 participants ensured good statistical power . Systematic random sampling helped reduce selection bias and enhanced the representativeness of the sample.

Conclusion

Investigation discovered a generally positive attitude and awareness concerning importance of blood donation among rural population of Etawah district. However, actual willingness to donate blood voluntarily remains low, primarily due to misconceptions, lack of knowledge, and limited motivation. Sociodemographic factors such as age, education, and employment status were significantly associated with favorable attitudes, suggesting that targeted educational and motivational strategies are essential.

To improve voluntary blood donation rates, public health interventions must focus on bridging knowledge gaps, addressing myths, and leveraging incentives and community influence. Tailored health education campaigns, mobile blood donation units, and community mobilization programs are recommended to promote regular, voluntary, and safe blood donation in rural settings. The findings provide a strong foundation for policy makers, NGOs, and healthcare institutions to design culturally appropriate and community-specific blood donation promotion strategies.

Recommendation

Blood donation is vital for surgeries, trauma care, chronic illnesses like sickle cell anemia, and cancer treatment, saving up to three lives per unit donated. In India, rural shortages persist due to low voluntary rates, risking lives in emergencies and maternal health crises. Voluntary non-remunerated donations ensure safer supplies, supporting WHO goals for universal health coverage.

Limitation of the Study

The cross-sectional design of investigation limits capability to create causal relationships between variables such as beliefs and behaviors. The study did not include qualitative interviews or focus groups that could have provided deeper insights into cultural and emotional barriers to blood donation.

Relevance of the Study

This rural Etawah study reveals positive blood donation attitudes (82.6%) but low voluntary willingness (27.8%), filling gaps in Uttar Pradesh data. It highlights sociodemographic links like education and employment to favorable views ($p<0.05$), overlooked in urban KAP research. Findings guide targeted campaigns with incentives, enhancing VNRBD strategies in underserved areas.

Authors Contribution

AK -Contributed to study design, data acquisition, and manuscript preparation, SK-: Provided overall guidance, departmental support, and critical review, LR-Corresponding author, guarantor, handled data analysis, statistics, and journal correspondence, AM-Assisted in literature search, data collection, and editing ,AV-Involved in data acquisition and initial drafting ,SB-Contributed to data acquisition and manuscript review.

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Conflict of Interest

There are no conflict of interest

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Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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