



Study on Blood Donor Profile in a District Hospital, Rajkot, Western India: A One-Year Study.

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Abstract

Background: Blood donors are the backbone of every blood transfusion service. Analysis of donor demographics and donation patterns helps blood centres plan recruitment strategies, improve donor retention, and ensure an adequate supply of safe blood. Previous Indian studies have shown that donor populations are predominantly young males and that voluntary blood donation is increasing. **Aim:** To study the demographic profile and donation characteristics of blood donors attending a district hospital, Rajkot, Western India over one year. **Materials and Methods:** A study was conducted at the Blood Centre of District Hospital, Rajkot, western India. Records of all eligible blood donors from 1 May 2025 to 30 April 2026 were reviewed. Information regarding age, sex, type of donor, ABO and Rh blood groups and place of donation (in-house/camp) was collected. Data were entered into Microsoft Excel and analyzed using descriptive statistics. **Results:** A total of 21542 blood donations were recorded during the study period. The majority of donors belonged to the 18–30-year age group. Male donors constituted the majority of donations. 100% donors were voluntary donors. B positive was the commonest blood group, followed by O positive. Rh-positive blood groups accounted for the vast majority of donations. **Conclusion:** Young adult males constituted the largest proportion of blood donors. Increasing female participation and promoting repeat voluntary blood donation can further strengthen the blood supply at district hospitals.

Keywords: Blood donor profile, District hospital, Voluntary blood donation, Blood bank, Blood group distribution.



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INTRODUCTION

Blood transfusion is an indispensable component of modern healthcare. The availability of safe blood depends on regular voluntary donations from healthy individuals. Blood donor profiling helps evaluate demographic characteristics, blood group distribution, and donation trends, thereby assisting blood centres in planning donor recruitment and inventory management.

District hospital blood centres cater to rural and semi-urban populations and often differ from tertiary care centres regarding donor characteristics. Knowledge of the donor profile is useful for developing targeted awareness programmes and improving voluntary blood donation.

Therefore, the present study was undertaken to evaluate the demographic profile of blood donors attending a district hospital blood centre over one year.

Objectives

Primary Objective-

To study the demographic profile of blood donors attending the district hospital blood centre.

Secondary Objectives

To determine age and gender distribution.

To evaluate ABO and Rh blood group distribution.

To study in-house versus outdoor camp donations (if applicable).

MATERIALS AND METHODS

A study was carried out in district hospital, Rajkot, Western India, from 1st May 2025 to 30th April 2026. The Study Population included records of all eligible blood donors who donated blood during the study period.

Inclusion Criteria

All successful whole blood donations during the study period.

Exclusion Criteria

Incomplete donor records.

Deferred donors.

Data Collection

Data were retrieved from:

Blood donor registration records

Blood bank software

Blood donor questionnaire

Variables Studied

Age

Gender

ABO blood group

Rh blood group

Place of donation (blood bank/outdoor camp)

Informed consent

Informed consent was obtained from all blood donors prior to blood donation according to institutional blood bank protocols.

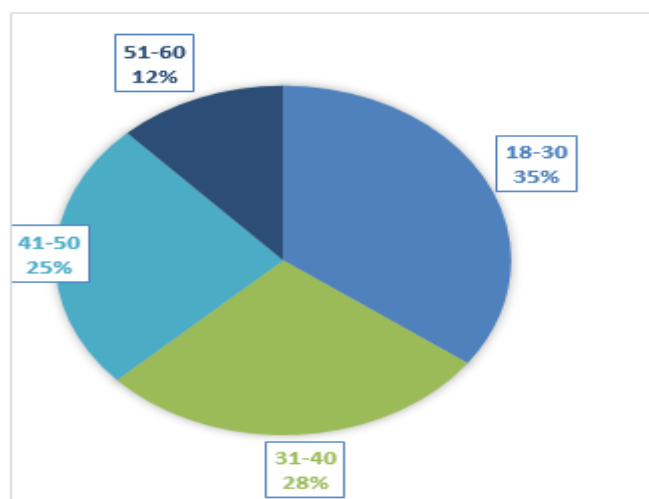
RESULTS

The study was carried out in Blood Centre, PDU Medical College and Civil Hospital, Rajkot, Western India, regarding the profiles of donors which showed the following results.

The age wise distribution of blood donors in our study showed a higher percentage of donors belonged to 18-30 years age group, followed by 31-40 years age group.

Table 1. Age-wise Distribution of Blood Donors

Age Group (Years)	Number of blood donors	Percentage %
18–30	7539	35%
31–40	6033	28%
41–50	5385	25%
51–60	2585	12%
Total	21542	100%



Graphical Representation of age wise distribution of blood donors.

In our study, there was a very high percentage of male donors (94.52%) compared to female donors(5.48%). It may be due to factors which caused deferral among females such as low Hemoglobin among females, period of menstruation coinciding with time of donation, females who are breastfeeding their children or they are on certain medications.

Table 2. Gender wise Distribution of blood donors

Gender	Number of blood donors	Percentage
Male	20362	94.52%
Female	1180	5.48%
Total	21542	100%

Our study showed that majority of the blood donors had B positive blood group(34%) followed by O positive blood group(31%). The percentage of Rh negative blood group donors in our study was very low which is comparable to other similar studies carried out.

Table 3 :ABO and Rh Blood Group Distribution of Blood Donors

Blood Group	Number of blood donors	Percentage
A+	4488	21%
A-	286	1.5%
B+	7316	34%
B-	478	2%
AB+	1739	8%
AB-	103	0.5%
O+	6669	31%
O-	463	2%
Total	21542	100%

DISCUSSION

The present study evaluated the demographic profile of blood donors attending a district hospital blood centre. Young adults (18-30 years) constituted the largest donor population, which is comparable to Patel PA et al(23.94%), Kumar R(58%) et al, Usha S et al(54.54%), Shah et al(61.46%) which were carried out in western India.

Comparative studies of age wise distribution of blood donors

Study	Region	Year	Major age group among blood doors
Present Study	Rajkot , Western India	2026	18-30 Years (35%)
Patel PA et al	Ahmedabad, Western India	2015	21-25 Years (23.94%)
Usha et al	Karnataka	2015	18-24 Years (54.54%)
Shah et al	Dahod, Gujarat	2022	18-24 Years(61.46%)

Male donors predominated over female donors. This finding has been consistently reported in Indian studies and may be attributed to a higher prevalence of anaemia among women, lower body weight, and sociocultural factors. Our study results were comparable to Patel PA et al (95.48%), Shah SK, et al(92.42%), Kadam SS, et al(89%)

Comparative studies of gender wise distribution of blood donors

Study	Region	Year	Gender wise distribution among blood doors
Present Study	Rajkot , Western India	2026	Male-94.52% Female-5.48%
Patel PA et al	Ahmedabad, Western India	2015	Male-95.48% Female-4.52%
Kadam SS, et al	Mumbai, India	2015	Male-89% Female-11%
Shah et al	Dahod, Gujarat	2022	Male-92.42% Female-7.58%

Voluntary blood donation formed the major proportion of donations, indicating improved public awareness regarding voluntary blood donation. Repeat donors remain an important source of safe blood because they generally have lower rates of transfusion-transmitted infections.

The most common blood group observed was expected to be B positive, followed by O positive, which is similar to reports from several regions of India.

Table: Comparative studies with this study

Study	Place	No donors. studied	ABO blood group				Rh blood group	
			A	B	AB	O	Rh D Positive	Rh D Negative
Present study	Rajkot, Western India 2026	21,542	22.1	36.1	8.5	33.1	93.8	6.2
Periyavan et al	Bengaluru, Karnataka, 2010	36,964	23.9	29.9	6.4	39.8	94.2	5.8
Das et al	Vellore, Tamil Nadu, 2001	150,536	21.8	32.7	6.7	38.8	94.5	5.5
Mallikarjuna et al	Davanagere, Karnataka 2012	19,413	26.1	29.9	7.2	36.8	94.5	5.5
Chandra et al	Lucknow, Uttar Pradesh, 2012	1,40,320	21.7	39.8	9.3	29.1	95.7	4.3
Sidhu et al	Punjab, 2003	1,150	21.9	37.6	9.3	31.2	97.3	2.7
Patel et al	Western Ahmedabad, Gujarat, 2015	5,316	21.9	39.4	7.9	30.8	95.1	4.9
Wadhwa et al	eastern Ahmedabad, Gujarat, 1998	ND	23.3	35.5	8.8	32.5	94.2	5.8
Gupta et al	Indore, Madhya Pradesh, 2012	17080	24.2	35.2	9.1	31.5	95.4	4.6
Naga et al	Durgapur, West Bengal, 2012	3850	23.9	33.6	7.7	34.8	94.7	5.3
Studies from Other parts								
Anees et al	Punjab, Pakistan, 2007	2542	34	29	4	33	96.7	3.3
Pramanik et al	Kathmandu, Nepal, 2000	120	26.2	22	4.4	47.5	80.3	19.7
Lyco et al	Nairobi, Kenya, 1992	38898	20	32.2	6.1	41.7	92.8	7.2

Table shows that Frequency of A B O blood groups of the present study was compared to the studies done at at Punjab by Sidhu et al at Ahmedabad by Patel PA et al ,Lucknow by Chandra et al , and Wadhwa MK et al and at Indore by Gupta H et al. In all these studies predominant blood group was 'B' which was followed by O, A and AB. On the other hand, studies were done at ShimogaMalnad by, at Bangalore by Periyavan A et al , Mallikarjuna et al, Girish CJ et al, Das et al , and at Durgapur by Nag I et al , the commonest A B O blood group was 'O' which is in contrast to present study where B is the most common A B O blood group.

In other countries of the world, like in Pramanik et al in Kathmandu, Nepal, in Pakistan by Anees et al, Lyco et al in Nairobi, Kenya, showed that the blood group O was highly frequent which contrasts with our presence study.

CONCLUSION

The donor population in the district hospital blood centre predominantly comprised young male voluntary donors. Efforts should focus on increasing female participation, encouraging repeat voluntary donation, and organizing regular awareness programmes and blood donation camps to ensure a safe and adequate blood supply.

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