

# A profile of blood donors in Bagalkot blood bank - A record based case series study

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## Abstract

**Introduction:** Globally blood bank services aim to provide a life-saving service by ensuring an adequate supply of safe blood. However, across the world blood services are at very different levels of development.

**Objectives:** To study the profile of Blood Donors utilizing Bagalkot Blood Bank services, Bagalkot in the year 2010.

**Materials and methods:** A case series descriptive study was conducted at Bagalkot Blood Bank, Bagalkot from May 2011 to July 2011. The study included all 6003 records of blood donors entered in the blood bank register between 01/January/2010 to 31/December/2010 in Bagalkot Blood Bank, Bagalkot and the same were analyzed.

**Results:** The present study revealed that most of the donors (32.2%) were of the age group 20-24 years (mean = 28.25±7.351 years), most of them (96.9%) being male and 70.8% of donors were from Urban areas. Of the total 6003 blood donations 94% were replacement donations. O +ve and B +ve were the most commonly donated blood group. Seroprevalence of HBsAg, HIV, HCV and syphilis in the present study was 2.8%, 0.4%, 0.3% and 0.03% respectively.

**Conclusion:** The present study revealed more male donors of the age group 20-24 years, belonging mainly urban areas and 94% being replacement donors. Seropositivity for HBsAg (2.8%) was found to be higher among all the blood donations.

**Key word:** Donor, blood donors, seroprevalence

## Introduction

Medical science has progressed tremendously over the years but, as yet there is no substitute for blood and, thus blood transfusion is essential part of modern-day health care. While 17% of the global population in developed countries benefit from approximately 60% of the 75 million units of blood donated each year in the world, the remaining 83% of the global population, living in the developing countries, have access to only 40% of the blood supply [1].

India is facing a scarcity of blood, since 1998 ruling of the Honorable Supreme Court of India banning professional blood donation [2]. The substantial gap in the demand and supply of blood is encouraging "professional" donorship. The donors usually belong to weaker sections of society and are rarely in ideal health for blood donation. The risk of infection is also high in blood collected professional

donors. WHO recommends developing strategies for 100% voluntary blood donation and 5 states in India achieved more than 80% voluntary blood donation [3].

Transmission of infectious diseases through donated blood is of concern to blood safety as transfusion forms an integral part of medical and surgical therapy. Blood transfusion carries the risk of transfusion-transmissible infections, including HIV, hepatitis, syphilis, malaria, etc. Among all infections HIV and hepatitis are the most dreadful [4].

In India, the Drug and Cosmetics (1st amendment) Rules 1992 (3) Act, mandates the testing of each unit of donated blood for the presence of markers of HIV, HBV, malaria and syphilis [5]. The improved screening and testing of blood donors has significantly reduced transfusion transmitted diseases in most developed countries. This has not been so in developing nations. Poor health education and lack of

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awareness result in the reservoir of infections in the population [4].

Globally services aim to provide a life-saving service by ensuring an adequate supply of safe blood. However, across the world blood services are at very different levels of development [6]. More over concealing the medical history by blood donors pose a threat to safe blood supply. So it is important to know the profile of Donors donating blood at Bagalkot Blood Bank, Bagalkot during the year 2010.

**Methodology**

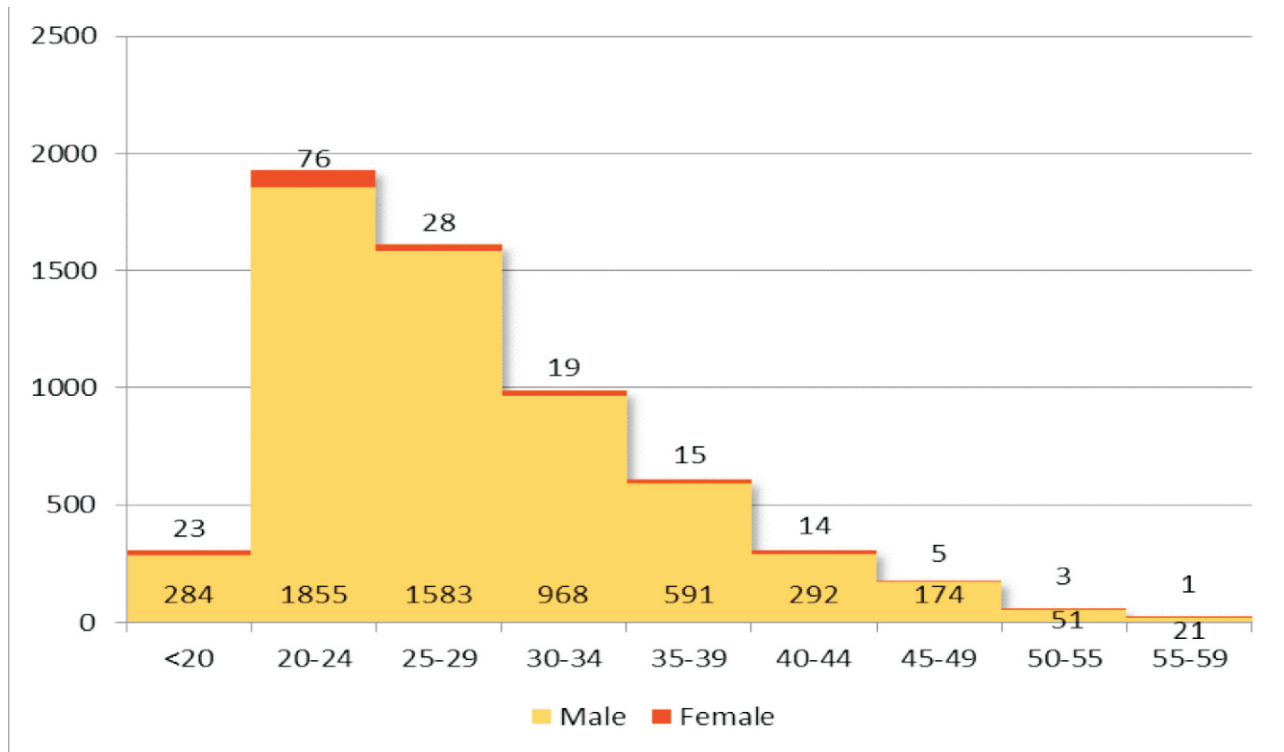
A case series descriptive study conducted at Bagalkot Blood Bank, Bagalkot during May 2011 to June 2011 (3 months), where the blood donors donated blood over a period of 1year (01/Jan - 31/Dec /2010) after taking approval from the Institution's Ethical Committee.All the 6003 blood donors registered during the said year were included for the study purpose. As a routine practice, apparently healthy blood donors were selected by the trained medical staff at the department. Consent for infectious marker

testing was obtained from all donors at the time of pre-donation counselling. Blood grouping and Rh typing was done by forward grouping and reverse grouping method (Span Diagnostics, Surat, India).

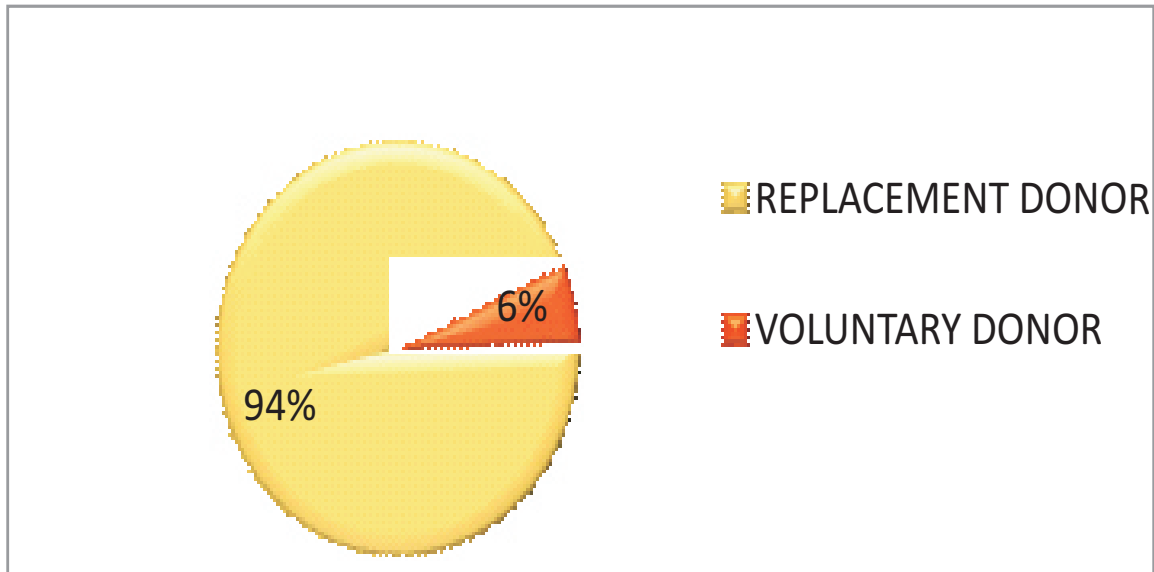
In the study period, serum specimens were screened for the presence of HBsAg (Hepalisa Kit, J. Mitra& Co., New Delhi, India), anti-HCV antibody (HCV Microlisa, J. Mitra & Co., New Delhi, India) and anti-HIV antibody (HIV Microlisa, J Mitra& Co., New Delhi, India) by a commercial microplate ELISA method and reagin antibody by a commercial non-treponemal rapid plasma reagin (RPR) card test (Span Diagnostics, Surat, India). Data on the frequencies was analysed as proportions.

**Results**

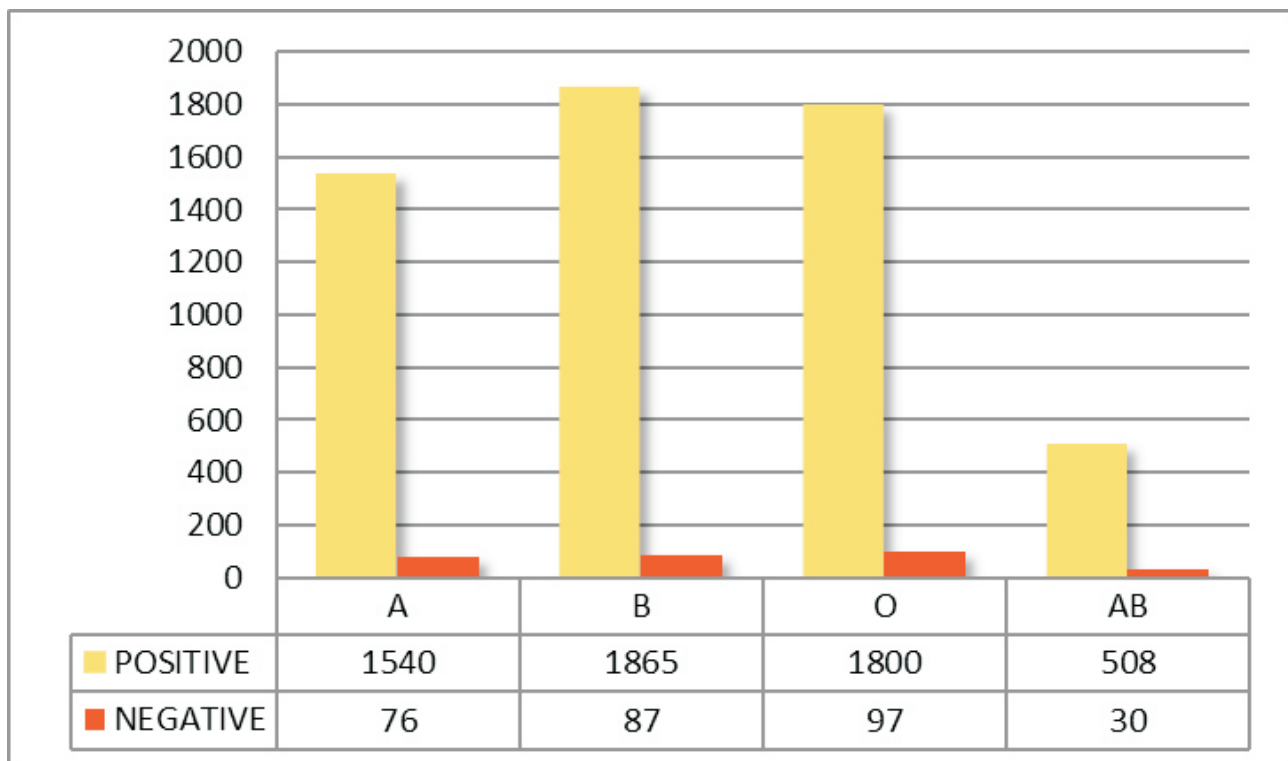
In the present study out of the 6003 blood donors, 32.17% were of the age group 20-24years. The mean age of donors was  $28.25 \pm 7.351$  years (Fig. 1). Most of the donors (96.93%) being male and 70.85% were from Urban areas. 94.06% were replacement donations (Fig.2). B +ve (31.07%) and O +ve (29.98%) were the most commonly donated blood groups (Fig.3).



**Figure. 1**Age and Sexwise Distibution of Donors



**Figure 2. Type of Blood Donor**



**Figure 3. Distribution of Donors According to their Blood Group**

**Table 1: Seroprevalence Among Blood Donors**

Serology	Replacement (n = 5647)		Voluntary (n = 356)		Total (n = 6003)	
	No.	%	No.	%	No.	%
HIV	24	0.43	2	0.56	26	0.43
HBsAG	150	2.66	15	4.21	165	2.75
HCV	14	0.25	1	0.28	15	0.25
VDRL	2	0.04	0	0.00	2	0.03

**p > 0.05 (statistically not significant) for each serology group at df =1**

Table. 1 shows HIV seroprevalence was positive in 26 (0.43%) blood donors. 0.43% and 0.56% blood donors were HIV positive among replacement and voluntary donors respectively. A total of 165 (2.75%) blood donors were positive for HBsAg. The seropositivity for HBsAg was 2.67% and 4.21% among replacement and voluntary donors respectively. HCV was positive in 15 (0.25%) donors. Among replacement and voluntary donors, 0.25% and 0.28% were positive for HCV respectively. Only 2 (0.03%) were positive for syphilis serology (RPR) and both were replacement donors. However, chi square test showed no relation between any of the seroprevalence among voluntary and replacement donors (p>0.05).

**Discussion**

In the present study about 60% of donors were in the age group of 20-30 years. Arora D et al. reported that out of 5849 blood donors, 3914 (66.9%) were of 18-31 years age and 1935 (33.1%) were of 32-44 years age.

Only 3.07% of donors were females and (96.93%) being male in the present study. Arora D et al. reported that out of 5849 blood donors, 5629

(96.2%) were males and 220(3.8%) were females [4]. Makroo et al. reported that out of 2,06,022 blood donors, 1,93,661 (94%) were males and 12,361 (6%) were females.<sup>5</sup> This huge gap in donating blood by females may be due to ignorance, fear of pain, many women being underweight and anemic and being exposed to the risk of pregnancy, lactation and menstruation. Most of donors were from urban area, may be due to easy accessibility to blood bank and more awareness in urban settings.

Present study revealed that only 5.94% of blood donors were voluntary donors. Kora et al. reported that the total blood units collected by voluntary blood donation were 3.99% which is lower compared to present study [3]. Arora D et al. reported that out of total 5849 donors, 4010 (68.6%) were replacement donors and 1839 (31.4%) were voluntary donors.<sup>4</sup> The official figures indicate that most of the blood collected in India is from the voluntary donors. This is misleading as it includes replacement donors, who are coerced into donating even if they may be unremunerated. True voluntary donors donating on a regular basis are a very small proportion of total, probably accounting for less than 10% of the total [7].

Most of the blood donors were of O and B

blood groups in present study, which goes hand-in-hand with the findings of the study on distribution of ABO and Rh-D blood groups among 150,536 blood donors screened at the Dr John Scudder Memorial Blood Bank, Christian Medical College Hospital, Vellore, over a period of 11 years (April 1988 to March 1999) by Das PK and et al. who reported that the most common blood group was found to be group O (38.75%), followed by group B (32.69%), and group A (18.85%). The least common blood group was AB group (5.27%)[8].

The prevalence of HIV infection among blood donors varies from one geographical location to another and can provide a reasonable 'proxy' for HIV infection levels in a larger adult population (WHO/UNAIDS, 2000)[9].

The present study reported seroprevalence of HBsAg, HIV, HCV and syphilis was 2.8%, 0.4%, 0.3%, 0.03% respectively. Bagalkot district is in 7th position among all Indian districts with very high seropositivity (2.9%) & high prevalence of HBsAg. As for HIV concerned Bagalkot is in highest prevalence area because of devdasi belt in Jamkhandi (Savadatti) & as per NACO10 Bagalkot is category A district (ANC>1%) & second in Karnataka to have highest patients on ART [3].

Arora et al. reported that seroprevalence of HBsAg, HIV, HCV and syphilis was 1.7%, 0.3%, 1.0%, 0.9% respectively [4]. Mythreyee *et al.*<sup>10</sup> reported in his study that the seroprevalence of HBsAg was 0.98% and rates in other parts of country, such as 1.66% in Eastern India, 1.7% from Haryana, and as high as 3.44% in Western India. Furthermore, previous reports from the northern, eastern, and western states of India and Pakistan revealed the HCV seroprevalence to be 1.5%, 0.35%, 0.29%, and 3% respectively and Mythreyee reported HCV seroprevalence to be 0.22%. The seropositivity for HIV was 0.19% in his study. The seropositivity for syphilis was 0.05% [1].

### Conclusion

Only 5.94% donors were voluntary and 94.06% were replacement donors who were made to donate blood in the given situation. If these

replacement persons are traced and tracked to become regular voluntary blood donors. Following measures like blood donation awareness programmes for general public, screening of HBsAg & HIV by rapid slide tests before bleeding, not to bleed rare blood groups until required, need to be taken into consideration. To follow blood grouping and Rh typing & screening protocol. Awareness in this regard for blood donation be created among the general population and more so in rural areas as a token of social responsibility.

### Recommendations

Extensive awareness programmes by blood banking services for donor motivation, so as to ensure adequate availability of safe blood to be launched.

Each hospital should have a hospital transfusion committee which should include transfusion specialist, pathologist, blood bank officer, clinician, surgeon, public relation officer and hospital administrator. Regular audit of transfusion of blood & its components is essential by hospital transfusion committee to reduce donor blood wastage & to promote rational blood use [11].

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