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Research Article

HEALTHY BUT DEFERRED: PATTERNS AND PREDICTORS OF BLOOD DONOR INELIGIBILITY-EXPERIENCE FROM GURUGRAM

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Abstract

Background: Blood donor deferral safeguards transfusion safety by preventing adverse donor reactions and transfusion-transmitted complications[1]. However, donor deferral impacts donor retention and reduces overall blood supply[2],[3].

Aim: To assess the pattern, frequency, and predictors of blood donor deferrals in a tertiary care blood centre in Gurugram over a one-year period.

Methods: A retrospective study was conducted from July 2024 to July 2025. Donor data from screening registers were analyzed for demographic characteristics, type of donors, causes of deferral, and temporal trends. Deferrals were classified into temporary and permanent categories as per national guidelines.

Results: A total of 2415 donors were screened; 176 were deferred (**7.29%**). Majority were males (75%). **Low hemoglobin** was the most frequent deferral cause (36.9%) followed by hypertension (19.9%). Age group **18–25 years** showed highest deferral incidence (41.4%). Seasonal variation indicated maximum deferrals in June. Temporary deferrals constituted 92.6%.

Conclusion: Most donor deferrals were temporary and avoidable. Implementing pre-donation counselling, anaemia awareness, and targeted follow-up can improve donor return and strengthen blood inventory.

Keywords: donor deferral, anaemia, blood safety, transfusion medicine, donor retention, India

INTRODUCTION

Blood transfusion services depend on a continuous supply of safe and eligible blood donors. Donor deferral, though essential for transfusion safety, can negatively influence donor motivation and return rates[1–3]. An individual who is willing to donate but gets deferred represents **a lost opportunity** for both immediate and future donation[4].

The deferral rate varies significantly depending on:

- **Donor characteristics** (gender, age, nutritional health)
- **Sociodemographic region**

- **Screening standards and eligibility criteria[5]**

International data suggest donor deferral rates ranging from 5–15%[4–6], whereas Indian reports range between 6–12%[7–9]. Anemia is the predominant deferral reason in India due to high prevalence among young females[8–10]. Other common reasons include hypertension, low weight, and recent medication[11].

However, **there is limited literature from Gurugram**, a rapidly developing region with a distinct mix of voluntary and replacement donors[12]. Local deferral analysis is crucial for:

- Identifying modifiable causes
- Planning donor-friendly interventions
- Improving donor retention[2,15]

This study was undertaken to evaluate **one-year donor deferral patterns and predictors** in a tertiary care hospital in Gurugram.

MATERIALS AND METHODS

Study Design and Setting

Retrospective observational study conducted at **SGT Blood Centre**, part of a tertiary care teaching hospital in Gurugram, Haryana, India.

Study Duration

July 2024 – July 2025 (13 months)

Donor Screening Protocol

All prospective donors underwent:

- Medical history interviewbased on Drugs and Cosmetics Act of 1940 and the Rules of 1945(as amended from time to time) for donor selection[7].
- Hemoglobin screening (automated analyzer)
- Vital parameters
- Physician examination **Inclusion Criteria**

Inclusion Criteria

- All individuals more than 18 years of age presenting for whole blood donation

Exclusion Criteria

- Incomplete or illegible screening records

Data Variables

- Age, gender
- Voluntary vs replacement donors
- First-time vs repeat donors
- Causes of deferral
- Monthly deferral trends
- Temporary vs permanent deferral status

Ethics Statement

Retrospective anonymized data were used; informed consent for research is routinely taken at donation. Separate IEC approval was **not required**.

Data Analysis

Data were analyzed using MS Excel 2021. Results expressed as percentages and tabulated.

RESULTS

Table 1: Donor Demographics

Of 2415 donors screened:

Variable	Category	n	%
Gender	Male	1880	77.8
	Female	535	22.2
Age Groups	18-25	856	35.4
	26-35	942	39.0
	36-45	477	19.7
	>45	140	5.9
Donor Type	Voluntary	1515	62.7
	Replacement	900	37.3

Table 1- Showing Donor demographics

Table 2: Deferral Profile

Table 2 showing deferral profiles

Parameter	n (out of 176)	%
Temporary deferrals	163	92.6
Permanent deferrals	13	7.4

Table 3: Cause-wise Deferral Pattern

Month	Temporary	Permanent
Jul-24	Anemia 2 Vein not properly acessible -1	Hypothroidism -2
Aug-24	Vein not properly acessible -1 Skin disease -1 Anemia -2	Kidney disease -1
Sep-24	Vein- 2 Anemias -4	Steroid -1
Oct-24	Hypertension -5 Recent alcohol intake -1 Tattoo- 2 Viral infection -1 Tooth Extraction -1 Antibiotics -2	Polycythemiavera -1 polycystic ovarian disease -1 Hypothhroidism 1
Nov-24	Anemia -7m Poor vein -2 Antibiotics -3 Minor surgery -1	NIL
Dec-24	Dengue -1 Anemia-3 Rabies vaccine-1 Poor vein -2	Hepatitis -1 epilepsy medicine - 1 Major surgery -1 Hypothyroidism-1
Jan-25	Poor vein -3 Anemia-2 Tooth extraction -1 Antibiotics -1	On insulin -1
Feb-25	Poor vein -3 Antiobiotics and steroids -11 Minor surgery -1 Hypertension -4 Rabies vaccination -1	Hepatitis -1

Mar-25	Anemia -2 Jaundice -1 Skin disease -1 Antibiotics -1 Poor vein -1 tattoo -2	NIL
Apr-25	Anemia- 6 tooth extraction 1 Allergic disease -1	Heart bypass surgery -1 Hypothyroidism -1
May-25	Anemia-17 On medication -4	Insulin -1 Major surgery -1 Skin allergy -1
Jun-25	Anemia-13 On medication -3 Food poisioning -1 Poor vein -5	NIL
Jul-25	Anemia- 15 Hypertension -2 Antibiotics-1 Poor vein -1 Dengue -1 Tooth extraction -1	NIL

TABLE 3 - showing Reasons of Deferral to blood donation

Low hemoglobin accounted for **36.9%**, followed by hypertension **19.9%**.

Figure 1 – Showing cause-wise distribution of Donors deferred

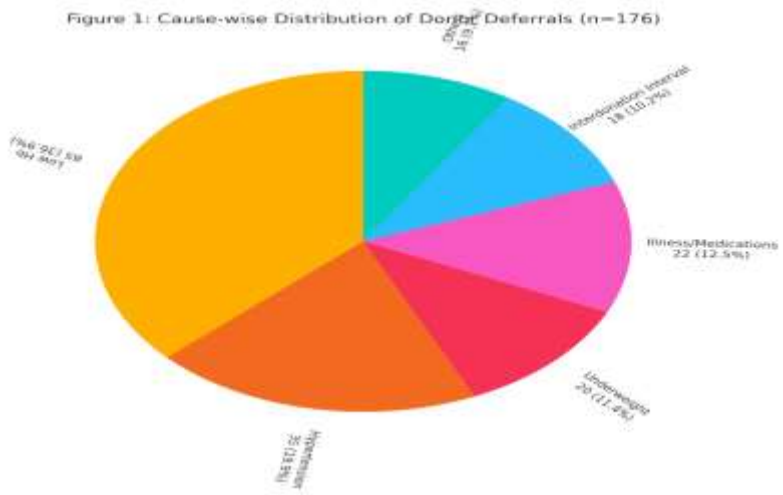

Table 4: Gender-wise Deferrals

Month wise deferrals	Male	Female
Jul-24	2	3
Aug-24	6	3
Sep-24	0	5
Oct-24	13	2
Nov-24	10	3
Dec-24	9	2
Jan-25	7	1
Feb-25	12	9
Mar-25	7	1
Apr-25	9	3
May-25	7	17
Jun-25	10	12
Jul-25	15	6

Table 4 showing Gender wise deferrals

Female donors showed **higher deferrals**.

Table 5: Age-wise Deferral Pattern

Age Group	Deferred	%
18–25	73	41.4
26–35	58	33.0
36–45	32	18.2
>45	13	7.4
Total	**176**	**100**

Table 5 showing Age wise Deferral pattern

Young donors are more vulnerable to get deferred.

Table 6: Month-wise Deferral Trends

Month (2024-25)	Donors Deferred
Jul	12
Aug	14
Sep	15
Oct	13
Nov	18
Dec	17
Jan	16
Feb	13
Mar	14

Apr	12
May	15
Jun	**17** (Peak)

Table 6 Showing month wise deferrals

Seasonal influence noted — higher summer impact.

DISCUSSION

Our observed deferral rate **7.29%** matches national data[7–9] and falls within global norms[4–6].

Key Insights

Finding	Supported by
• Anemia major cause	• Indian studies[8–10], WHO report[13]
• Temporary deferrals dominate	• A recoverable donor pool[3],[15]
• Young donors most affected	• Nutritional burden in India[13]

Hypertension as the 2nd most common cause indicates a **shifting pattern** in urban donors due to lifestyle changes[4].

Female deferral was strongly associated with **low Hb**, similar to Kaur et al.[8] and WHO data[13].

Practical Recommendations

- Iron profiling & supplementation in frequent donors
- Awareness on inter-donation interval
- Pre-donation hydration advice in summer
- SMS reminders to deferred donors for reassessment

Strengths

- First analysis from Gurugram, Haryana, India.
- One-year continuous dataset
- Practical insights for donor management

Limitations

- Single-centre study — limited generalizability
- No follow-up on return rates
- Some records lacked detailed clinical annotations

Future Scope

- Track return rate and compliance after counselling
- Implement donor-specific interventions (especially young females)

CONCLUSION

This study shows a **low-moderate deferral rate (7.29%)**, with the majority being preventable. Targeted nutritional and medical counseling, timely follow-up, and donor-friendly policies may enhance donor retention and support blood supply safety.

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