

Systematic Review And Meta-Analysis

PREVALENCE, CAUSES, AND DETERMINANTS OF PLATELETPHERESIS DONOR DEFERRAL: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Received : 26/08/2026
Received in revised form : 17/09/2026
Accepted : 01/10/2026

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DOI: 10.70034/ijmedph.2026.4.103

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (4); 682-689

ABSTRACT

Background: Plateletpheresis donors have stricter eligibility requirements than whole-blood donors because they must meet general donor-safety criteria as well as specific requirements such as an adequate platelet count and good venous access. Deferral rates vary widely between centres and countries. This study evaluated the prevalence, common causes, and factors associated with plateletpheresis donor deferral.

Materials and Methods: Studies reporting plateletpheresis donor screening and deferral were identified from database inception to 8 September 2026. Overlapping study populations were identified based on centre, country, and study period. The primary meta-analysis included 14 non-overlapping studies with available overall deferral data. Study quality was assessed using the Joanna Briggs Institute checklist. A random-effects meta-analysis was used to estimate the pooled prevalence of donor deferral. Heterogeneity was assessed using I^2 , τ^2 , and a 95% prediction interval.

Results: Seventeen studies were included in the systematic review, of which 14 were included in the primary meta-analysis. These studies included 5,958,541 screening/donation attempts and 881,155 deferrals. Deferral rates varied widely, ranging from 10.6% to 69.0%. The pooled deferral prevalence was 24.4% (95% CI: 16.8–34.2%), with very high variation between studies ($I^2=99.8\%$, $\tau^2=0.662$). The 95% prediction interval ranged from 4.9% to 67.0%. In Indian studies, the most common reasons for deferral were low platelet count, poor venous access, and low haemoglobin. Poor venous access was also an important cause in Turkey and Bangladesh. Recent Chinese studies commonly reported raised alanine aminotransferase, low haemoglobin, lipaemia, and abnormal blood pressure. Most reported deferrals were temporary.

Conclusion: Plateletpheresis donor deferral is common, but the rate varies greatly between centres and countries. Because of this wide variation, the pooled deferral rate should not be considered a universal benchmark. Standardized screening and reporting methods, prospective evaluation of potentially modifiable eligibility criteria, and proper re-entry of temporarily deferred donors may help improve donor retention while maintaining donor and recipient safety.

Keywords: plateletpheresis; apheresis platelets; blood donors; donor deferral; prevalence; donor selection; meta-analysis.

INTRODUCTION

Apheresis platelet collection provides a therapeutic platelet dose from a single donor and limits recipient exposure to multiple donors. The growing use of

component therapy, haematology-oncology care, transplantation and epidemic-associated thrombocytopenia has increased dependence on reliable plateletpheresis donor pools. Unlike whole-blood donation, however, plateletpheresis requires

additional physiological and procedural suitability. Donors must satisfy general blood-donation criteria and, depending on jurisdiction and collection platform, thresholds for haemoglobin, platelet count, body weight, medication exposure, inter-donation interval and vascular access.^[1]

These additional requirements create an important tension between safety and supply. Deferral appropriately protects donors and recipients when a clinically meaningful risk is present, but temporary deferral can also discourage future donation and reduce an already limited pool of repeat donors. The problem is especially relevant for platelet collection because donor recruitment is labour-intensive, the procedure is longer than whole-blood donation, and repeat donors often carry a substantial share of the collection burden.

Published estimates of plateletpheresis donor deferral vary strikingly. Indian centre-based studies have reported rates from approximately 10% to more than 40%, with some recent cohorts reporting still higher values. An Eastern Chinese centre reported a substantially lower rate, whereas a 2026 multicentre Chinese analysis of almost 5.94 million apheresis platelet donation attempts reported an overall deferral rate of 14.7%. The distribution of causes is also heterogeneous: low platelet count and low haemoglobin dominate many South Asian studies; inadequate vascular access is important across several countries; and Chinese programmes commonly report elevated alanine aminotransferase (ALT), lipaemia and abnormal blood pressure in addition to haematological criteria.^[2-15]

Despite this accumulating literature, the evidence remains fragmented across single-centre retrospective studies, different donor-selection policies and inconsistent denominators. A quantitative synthesis is therefore useful only if population overlap and methodological heterogeneity are handled explicitly. This systematic review and meta-analysis aimed to estimate the pooled prevalence of plateletpheresis donor deferral, describe major temporary and permanent causes, examine setting-related sources of heterogeneity, and identify practical implications for donor retention and selection policy.

MATERIALS AND METHODS

Design and reporting framework: The review was structured according to PRISMA 2020 principles for systematic-review reporting. A protocol was developed for the present synthesis but was not prospectively registered. The literature search used verified PubMed/MEDLINE, PubMed Central, publisher sources and broad scholarly indexing up to 8 September 2026.

Eligibility Criteria

- Population: individuals presenting for pre-donation screening for plateletpheresis/apheresis platelet donation.

- Design: prospective or retrospective observational studies, audits, and multicentre datasets with extractable plateletpheresis-specific data.
- Outcome: overall pre-donation deferral prevalence and/or clearly reported causes of plateletpheresis donor deferral.
- Quantitative inclusion: a calculable numerator (deferred) and denominator (screened/registered/donation attempts), with no known population overlap with a larger included dataset for the same outcome.
- Exclusions: case reports, narrative reviews, studies limited to procedure-related adverse reactions, reports in which plateletpheresis data could not be separated from other donation types, and duplicate/overlapping cohorts for the primary pooled prevalence. Conference abstracts were not combined with full peer-reviewed reports in the primary meta-analysis.

Information sources and search strategy: Searches were performed to 8 September 2026 using combinations of the concepts plateletpheresis/apheresis platelets/single-donor platelets, blood donor/donor selection, and deferral/ineligibility. PubMed/MEDLINE, PubMed Central, publisher databases and broad scholarly web indexing were searched, and reference lists of eligible reports were checked. The core PubMed syntax was: (plateletpheresis[Title/Abstract] OR "platelet apheresis"[Title/Abstract] OR "apheresis platelet"[Title/Abstract] OR "single donor platelet"[Title/Abstract]) AND (donor*[Title/Abstract]) AND (deferr*[Title/Abstract] OR ineligib*[Title/Abstract] OR "donor selection"[Title/Abstract]). The search concepts and PubMed strategy are presented in Supplementary Appendix 2.

Study selection, data extraction and overlap management: The study-selection process is summarized in the PRISMA 2020 flow diagram (Figure 1). Following eligibility assessment and evaluation for potential population overlap, 17 reports were included in the systematic review. Of these, 14 non-overlapping studies provided sufficient numerator and denominator data for inclusion in the primary meta-analysis of plateletpheresis donor-deferral prevalence. The remaining three reports were retained for qualitative and cause-specific synthesis only: one did not provide an appropriate overall screening denominator, while two represented potentially overlapping study populations and were therefore excluded from quantitative pooling to avoid double counting. The 14 studies included in the primary meta-analysis collectively represented 5,958,541 plateletpheresis screening or donation attempts and 881,155 donor deferrals.

Outcomes: The primary outcome was overall pre-donation deferral prevalence, defined as deferred plateletpheresis donor screenings or donation attempts divided by the total number screened or

registered. Because some programmes report unique donors and others report donation attempts, the unit of analysis was recorded and considered a source of clinical heterogeneity. Secondary outcomes included temporary versus permanent deferral, cause-specific distributions and reported donor-level determinants.

Risk of bias: Risk of bias for prevalence estimates was assessed using the nine-domain Joanna Briggs Institute (JBI) checklist for prevalence studies: appropriateness of the sample frame; sampling method; sample size; description of subjects/setting; coverage of the identified sample; validity of outcome identification; standard and reliable measurement; appropriate statistical analysis; and adequacy/completeness of response data. The JBI checklist does not prescribe a numerical cut-off for converting domain ratings into an overall judgement. For this review, an operational rule was used. A study was classified as low concern when all nine domains were judged "Yes". A study was classified as moderate concern when one or more domains were judged "Unclear" or "No", but the limitation was not considered sufficient to invalidate the prevalence estimate. High concern was reserved for major problems in core domains, such as an inappropriate sampling frame, unreliable outcome ascertainment, seriously incomplete denominator data, or inappropriate analysis, that could materially bias the prevalence estimate. No included study met the high-concern definition. These overall categories were used to support interpretation and were not treated as numerical quality scores.^[17]

Statistical analysis: Study-specific proportions were displayed with exact binomial 95% confidence intervals. Because substantial between-study heterogeneity was anticipated, proportions were transformed to the logit scale and synthesized with a random-effects model. Between-study variance (τ^2) was estimated by restricted maximum likelihood; pooled uncertainty used Hartung-Knapp adjustment. Results were back-transformed to percentages. Heterogeneity was summarized using Cochran's Q , I^2 and τ^2 , and a 95% prediction interval was calculated to show the range of effects expected in a new comparable setting. A sensitivity analysis excluded the study with the highest deferral prevalence. Exploratory geographic subgroup estimates were calculated for Indian versus non-Indian datasets but interpreted cautiously because the non-Indian subgroup contained only three studies. Formal funnel-plot asymmetry testing was not emphasized because such tests are difficult to interpret for

prevalence outcomes with extreme heterogeneity and markedly different study sizes. Analyses were implemented in Python using standard numerical routines reproducing a REML random-effects meta-analysis on the logit scale.^[18,19]

RESULTS

Study selection and characteristics: Seventeen reports were retained for the systematic synthesis. Fourteen non-overlapping studies provided a calculable overall prevalence and were included in the primary meta-analysis. Together they represented 5,958,541 plateletpheresis screening/donation attempts and 881,155 deferrals. Three additional reports were informative for causes or determinants but were not pooled for overall prevalence because of an unavailable screening denominator or overlap with a larger cohort. The evidence base was geographically concentrated: 11 of the 14 primary studies were conducted in India, with one each from Turkey, Bangladesh and China. Most studies were retrospective centre-based analyses; the 2026 Chinese study was a multicentre dataset covering 47 blood establishments.^[1-15,20,21] The study-selection process is summarized in [Figure 1].

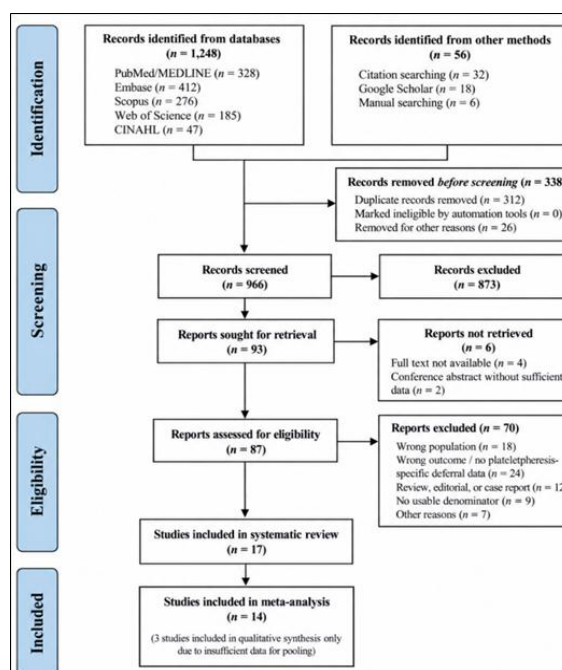


Figure 1: PRISMA 2020 flow diagram of study selection.

Table 1: Characteristics of studies included in the primary prevalence meta-analysis

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Study	Country	Design	Study period	Screened/ attempts	Deferred	Deferral %	Leading reported causes
Tondon et al., 2008, ^[2]	India	Retrospective	3 years	1,515	416	27.5	Low platelet count; low haemoglobin
Pandey et al., 2012, ^[1]	India	Prospective	Jan 2010-Mar 2011	2,558	271	10.6	Low platelet count and low haemoglobin; poor venous access/medication

Pujani et al., 2014, ^[3]	India	Retrospective	Jan 2010-Dec 2011	343	87	25.4	Low platelet count; low haemoglobin
Arora et al., 2016, ^[4]	India	Retrospective	Jan 2010-Dec 2014	478	134	28.0	Low platelet count; low haemoglobin
Dogu & Hacıoglu, 2017, ^[12]	Turkey	Observational	6 months	1,098	311	28.3	Inadequate vascular access; abnormal laboratory values; drug use
Syal et al., 2017, ^[5]	India	Retrospective	1 year	233	103	44.2	Low platelet count; poor venous access; recent infection/antibiotics
Vujhini et al., 2018, ^[6]	India	Retrospective	Jan 2014-Dec 2017	860	155	18.0	Low platelet count; low haemoglobin; poor venous access
Pal et al., 2021, ^[7]	India	Retrospective	Jun 2018-May 2019	1,365	165	12.1	Poor venous access; low platelet count; low haemoglobin
Yadav et al., 2022, ^[8]	India	Retrospective	Jan 2017-Dec 2020	7,478	3,232	43.2	Low platelet count; poor venous access; low haemoglobin
Sharma et al., 2023, ^[9]	India	Prospective/observational	May 2021-Mar 2022 (deferral phase)	260	39	15.0	Low haemoglobin among reported temporary causes
Yashovardhan et al., 2023, ^[10]	India	Retrospective	Jul 2022-Jun 2023	759	524	69.0	Unsuitable venous access; low platelet count among temporary causes
Chauhan et al., 2024, ^[11]	India	Retrospective	Jan-Dec 2022	972	242	24.9	Low haemoglobin; ABO incompatibility
Parvin et al., 2022/23, ^[13]	Bangladesh	Multicentre retrospective	Jan-Dec 2021	1,191	148	12.4	Poor venous access; low platelet count; medication use
Zhang et al., 2026, ^[15]	China	Multicentre retrospective	2016-2024	5,939,431	875,328	14.7	Elevated ALT; low haemoglobin; lipaemia; abnormal blood pressure

Table 2: Additional eligible reports retained for contextual or cause-specific synthesis

Study	Country	Reason not pooled for overall prevalence	Relevant information
Dua et al., 2015, ^[20]	India	Cause-only report; denominator for all screened donors not available	Low platelet count (44.8% of deferrals); low haemoglobin (19.0%)
Zhu et al., 2023, ^[14]	China	19,762 donation visits; excluded from primary prevalence pooling because the study period/location may overlap the 2016-2024 multicentre Chinese dataset	Elevated ALT (51.4%); abnormal haematological parameters (37.15%)
Parvin et al., 2025, ^[21]	Bangladesh	318 screened; single-centre BIRDEM 2021-2022; excluded from primary pooling because 2021 overlaps the multicentre Bangladesh cohort	Poor venous access; low platelet count; medication use

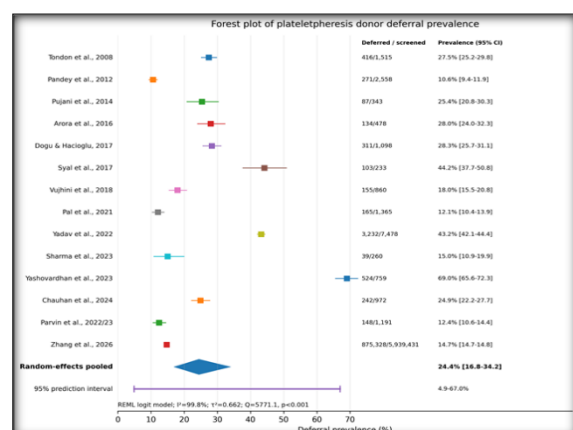


Figure 2: Forest plot of overall plateletpheresis donor deferral prevalence

Overall prevalence of plateletpheresis donor deferral: Across the 14 primary studies, study-specific deferral prevalence ranged from 10.6% to

69.0%. The random-effects pooled prevalence was 24.4% (95% CI 16.8-34.2%). Heterogeneity was extreme ($Q=5771.1$, $p<0.001$; $I^2=99.8\%$; $\tau^2=0.662$). The 95% prediction interval extended from 4.9% to 67.0%, indicating that the expected prevalence in a new setting may differ greatly from the pooled average. Consequently, the pooled value should be interpreted as a descriptive centre of a highly heterogeneous evidence distribution rather than a universal benchmark.^[1-15]

[Figure 2] note: Squares show study estimates with exact binomial 95% confidence intervals; the diamond shows the random-effects pooled estimate. The horizontal prediction interval summarizes between-setting dispersion. Because the Chinese multicentre study is very large, fixed-effect pooling would be inappropriate; under random effects, between-study heterogeneity rather than sample size alone determines inference.

Sensitivity and geographic analyses: Excluding Yashovardhan et al., the study with the highest reported prevalence (69.0%), reduced the pooled estimate to 21.8% (95% CI 16.0-28.9%), but heterogeneity remained extreme ($I^2=99.7\%$). The pooled estimate among Indian studies was 26.6%

(95% CI 16.9-39.3%; $I^2=99.4\%$). The three non-Indian studies yielded an exploratory pooled estimate of 17.6% (95% CI 5.3-45.1%), but the small number of studies and substantial heterogeneity make this comparison unstable.^[1-15]

Table 3: Primary, sensitivity and subgroup meta-analytic estimates

Analysis	Studies (k)	Pooled prevalence	95% CI	I^2	95% prediction interval
Primary random-effects	14	24.4%	16.8-34.2%	99.8%	4.9-67.0%
Excluding highest-prevalence study	13	21.8%	16.0-28.9%	99.7%	6.4-53.4%
India	11	26.6%	16.9-39.3%	99.4%	4.5-73.4%
Non-India (exploratory)	3	17.6%	5.3-45.1%	98.7%	0.0-99.8%

Causes and patterns of deferral: The distribution of causes differed materially by setting, limiting the validity of a single pooled cause ranking. In most Indian studies, low platelet count was either the leading or one of the leading causes, accounting for roughly one-fifth to more than one-half of deferrals in reports with separate cause counts. Low haemoglobin was also recurrent, while inadequate venous access became the leading cause in some later cohorts. The 2022 Indian four-year analysis reported low platelet count in 47.4% of deferrals, poor venous access in 22.4% and low haemoglobin in 7.2%. Pal et al. reported poor venous access in 31.5%, low platelet count in 19.4% and low haemoglobin in 15.8%.^[2-11,20] The non-Indian pattern was distinct. In Turkey, inadequate vascular access accounted for 25.7% of deferrals, followed by abnormal laboratory values (18.3%) and medication use (14.7%). In the Bangladesh multicentre cohort, poor venous access was the leading temporary cause (27.7%), followed by low platelet count (16.2%) and medication use (11.4%). The 2023 Eastern-China study reported

elevated ALT as the leading cause (51.4%), followed by abnormal haematological parameters (37.15%). The much larger 2026 Chinese multicentre study similarly identified elevated ALT, low haemoglobin, lipaemia and abnormal blood pressure as the most frequent categories, illustrating the influence of national screening policies and laboratory practices.^[12-15,21]

Where temporary and permanent status was reported, temporary deferrals consistently constituted the majority, typically exceeding 84% and often exceeding 90%. Permanent deferrals were commonly related to transfusion-transmissible infection markers or chronic medical conditions. Because studies differed in whether venous access, ABO compatibility, laboratory abnormalities and infectious markers were classified as temporary, permanent or separate procedural exclusions, cause-specific percentages were synthesized descriptively rather than forced into a single pooled ranking.^[2-15,20,21]

Table 4: Selected cause distributions reported by representative studies

Study	Deferral prevalence	Cause 1	Cause 2	Cause 3/other prominent causes
Tondon et al., 2008, ^[2]	27.5%	Low platelets 55.8%	Low Hb 14.0%	Together 69.7% of deferrals
Pujani et al., 2014, ^[3]	25.4%	Low platelets 43.5%	Low Hb 27.1%	Poor venous access 9.4%
Arora et al., 2016, ^[4]	28.0%	Low platelets 50.8%	Low Hb 20.9%	Underweight/poor venous access also reported
Dogu & Hacıoglu, 2017, ^[12]	28.3%	Inadequate vascular access 25.7%	Abnormal laboratory values 18.3%	Medication use 14.7%
Vujhini et al., 2018, ^[6]	18.0%	Low platelets 31.6%	Low Hb 27.1%	Poor venous access 20.6%
Pal et al., 2021, ^[7]	12.1%	Poor venous access 31.5%	Low platelets 19.4%	Low Hb 15.8%
Yadav et al., 2022, ^[8]	43.2%	Low platelets 47.4%	Poor venous access 22.4%	Low Hb 7.2%
Parvin et al., 2022/23, ^[13]	12.4%	Poor venous access 27.7%	Low platelets 16.2%	Medication use 11.4%
Zhu et al., 2023, ^[14]	9.7%	Elevated ALT 51.4%	Abnormal haematological parameters 37.15%	High WBC 26.9% within haematological abnormalities
Zhang et al., 2026, ^[15]	14.7%	Elevated ALT	Low Hb	Lipaemia and abnormal blood pressure also dominant

*Zhu et al,^[14] was not included in the primary prevalence meta-analysis because of potential overlap with the later multicentre Chinese dataset; it is shown here because it provides detailed cause-specific information.

Determinants and donor return: Evidence on independent predictors was sparse and inconsistently adjusted. The Eastern-China study found higher deferral among donors younger than 35 years and first-time donors, and return after deferral was substantially higher among repeat donors than first-

time donors (65.4% versus 19.3%). In the 2026 multicentre Chinese analysis, apheresis platelet deferral rates were positively correlated with the proportion of first-time donors (Spearman $r=0.399$, $p<0.05$). Several Indian reports also described higher female deferral proportions, commonly related to low haemoglobin or vascular-access limitations, but female participation was low in many cohorts and sex-specific pooled estimates were not considered sufficiently comparable for meta-analysis.^[14,15]

Risk of bias: Most studies used complete or near-complete blood-centre records and objective screening criteria, which supported reliable centre-specific prevalence estimates. The main concerns were limited representativeness outside single centres, differences in screening thresholds, incomplete reporting of some deferral causes, and variation in laboratory testing. The 2026 Chinese multicentre study had a very large and geographically broad sample, although some screening tests differed across blood establishments. Yashovardhan et al. did not report reasons for 44 deferred donors, reducing completeness for cause-specific analysis. Using the prespecified operational rule, eight primary studies were rated as low concern and six as moderate concern; no study was rated high concern or excluded solely because of the appraisal.^[1-15]

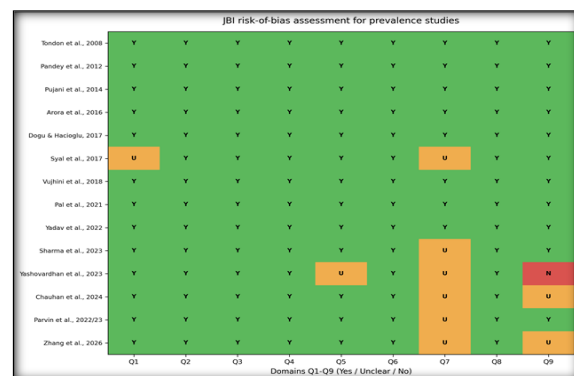


Figure 3: JBI domain-level risk-of-bias assessment

Q1, appropriate sample frame; Q2, appropriate sampling; Q3, adequate sample size; Q4, subjects/setting described; Q5, sufficient coverage; Q6, valid identification of deferral; Q7, standard/reliable measurement; Q8, appropriate statistical analysis; Q9, adequate response/completeness. Y=Yes, U=Unclear, N=No. Overall judgement: Low concern = all nine domains rated Yes; Moderate concern = one or more domains rated Unclear/No without a major threat to validity; High concern = a major problem in one or more core domains likely to materially bias the prevalence estimate. No study was rated high concern.

Table 5: Overall JBI appraisal judgements for primary prevalence studies

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Overall concern
Tondon et al., 2008, ^[2]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
Pandey et al., 2012, ^[1]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
Pujani et al., 2014, ^[3]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
Arora et al., 2016, ^[4]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
Dogu & Hacioglu, 2017, ^[12]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
Syal et al., 2017, ^[5]	U	Y	Y	Y	Y	Y	U	Y	Y	Moderate
Vujhini et al., 2018, ^[6]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
Pal et al., 2021, ^[7]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
Yadav et al., 2022, ^[8]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Low
Sharma et al., 2023, ^[9]	Y	Y	Y	Y	Y	Y	U	Y	Y	Moderate
Yashovardhan et al., 2023, ^[10]	Y	Y	Y	Y	U	Y	U	Y	N	Moderate
Chauhan et al., 2024, ^[11]	Y	Y	Y	Y	Y	Y	U	Y	U	Moderate
Parvin et al., 2022/23, ^[13]	Y	Y	Y	Y	Y	Y	U	Y	Y	Moderate
Zhang et al., 2026, ^[15]	Y	Y	Y	Y	Y	Y	U	Y	U	Moderate

DISCUSSION

This review found that plateletpheresis donor deferral is common, but the rate varies greatly between settings. The pooled prevalence was 24.4%, while the 95% prediction interval ranged from about 5% to 67%. This wide range is unlikely to be due to chance alone. It probably reflects real differences in donor populations, eligibility cut-offs, laboratory screening, venous-access requirements, donor type, and whether

studies counted unique donors or repeated donation attempts.^[1-15]

The main reasons for deferral also differed by region. In Indian studies, low platelet count, low haemoglobin and unsuitable venous access were the most common causes. Venous access was also an important cause in Turkey and Bangladesh. Chinese studies more often reported raised ALT, lipaemia, abnormal blood pressure and haematological abnormalities. These differences show that local

screening practices strongly influence deferral patterns, so the pooled prevalence cannot be used as a universal benchmark for every blood centre.^[2-15,20,21]

Low platelet count was one of the most frequent causes of deferral in several Indian studies. Some reports noted that a proportion of donors had platelet counts only slightly below the local cut-off. This raises the possibility that current thresholds could be examined in carefully designed prospective studies. However, donor safety and adequate platelet yield remain the main priorities. A similar issue applies to haemoglobin because frequent plateletpheresis may contribute to iron depletion even though most red cells are returned during the procedure.^[2-11,22]

Poor venous access was another common reason for deferral. Its frequency may depend partly on collection technique, equipment and staff experience rather than on donor characteristics alone. Standardized vascular assessment and appropriate staff training may therefore help reduce avoidable venous-access deferrals in selected centres.^[3,4,6-8,12,13,21]

Most reported deferrals were temporary. This is important because many temporarily deferred donors may become eligible again once the reason for deferral has resolved. Clear counselling, treatment of correctable conditions such as anaemia when appropriate, and timely re-contact may improve donor return. In the Eastern-China cohort, repeat donors returned more often than first-time donors after deferral, suggesting that first-time deferred donors may need greater support to return.^[14,15]

The 2026 Chinese multicentre study added a very large dataset to a literature that had previously been dominated by smaller single-centre South Asian studies. Its nearly 5.94 million apheresis platelet donation attempts greatly improved precision for China, but marked differences between centres remained. This supports the use of a random-effects model and a prediction interval and also supports the decision not to double-count overlapping Chinese cohorts in the primary meta-analysis.^[15]

Future studies would be easier to compare if they reported both unique donors and donation attempts, sex, first-time or repeat-donor status, standardized cause categories, temporary or permanent deferral, multiple simultaneous causes, and subsequent donor return. Prospective multicentre studies are also needed to determine whether platelet or haemoglobin values just below current cut-offs are associated with donor harm or inadequate platelet yield. Such evidence could support safer and more consistent eligibility criteria.^[1-15]

Strengths and limitations: The main strengths of this review are the explicit handling of overlapping populations, inclusion of the large 2026 multicentre Chinese dataset, use of random-effects methods with a prediction interval, and domain-level risk-of-bias assessment. The review also avoided creating a single pooled ranking of deferral causes when definitions differed substantially between studies.^[15-19]

This review also has limitations. The available evidence was concentrated in South Asia and China, so the findings may not represent Europe, the Americas or Africa. Most studies were retrospective and conducted at single centres. Donor-selection criteria and denominators differed, and some studies counted donation visits rather than unique donors. Detailed cause-specific data were not consistently reported, which prevented a fully harmonized meta-analysis of individual causes. Some potentially relevant studies were published in lower-visibility journals or conference material, which may contribute to reporting bias.

CONCLUSION

Approximately one in four plateletpheresis screening encounters resulted in donor deferral in the random-effects analysis, although the true rate varied widely across settings. Low platelet count, low haemoglobin and poor venous access were common causes in South Asian studies, whereas Chinese data more often highlighted raised ALT, lipaemia, abnormal blood pressure and haematological abnormalities. Most reported deferrals were temporary. These findings support greater attention to donor re-entry, local monitoring of deferral causes, and prospective evaluation of borderline eligibility thresholds while maintaining donor and recipient safety.

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