

Patient Follow-Up Rate After Comprehensive Dental Treatment Under General Anesthesia: a Meta-Analysis.

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BACKGROUND

- ❖ Indications for treatment under General Anesthesia (GA) include: lack of psychological and emotional maturity, SHCN, extreme anxiety/fear, significant surgical procedure, may benefit from reduced medical/psychological risk.
- ❖ Benefits of GA: comprehensive dental treatment in one session, promotes positive dental experience, encourages healthy dental habits, reduces stress for both children and parents, eases logistical burdens on families.
- ❖ Challenges: despite short-term success, high recurrence of dental caries.
- ❖ Importance of post-op follow-up: detects early complications, supports OH and prevention, success relies of parental compliance.
- ❖ Current Gap: existing follow-up strategies lack effectiveness and a more effective recall protocols needed.

PURPOSE/OBJECTIVE

- ❖ Aims to evaluate follow-up rate of pediatric patients who received comprehensive dental treatment under general anesthesia.
- ❖ To identify potential factors and barriers influencing post-operative compliance.
- ❖ To identify potential factors that will facilitate adherence to follow-up appointments to improve patient outcomes and implement preventative strategies to avoid future need for treatment under GA.

METHODS

- ❖ Comprehensive search of peer-reviewed literature utilizing data bases such as: PubMed, Web of Science, Scopus, Embase, and Cochrane Library.
- ❖ Studies were selected based on predefined inclusion and exclusion criteria.
- ❖ Data extraction included patient demographics, follow-up rates, influencing factors, and reported barriers to compliance.
- ❖ The review adhered to PRISMA (Fig. 3). A risk of bias assessment was conducted for all included studies (Fig. 2).
- ❖ A guidelines to ensure methodological rigor. Statistical analysis included: meta-analysis, descriptive statistics, and thematic analysis of qualitative data regarding barriers and facilitators to follow-up care using SAS 9.4 software.

Inclusion Criteria:

1. Studies involving patients who underwent comprehensive dental treatment under general anesthesia, with age ranging from 0 to 18 years.
2. Studies that report quantitative data on follow-up rates.
3. Articles published in peer-reviewed journals in English.
4. Systematic reviews, cohort studies, randomized controlled trials, and observational studies.

Exclusion Criteria

1. Studies focusing on dental procedures not performed under GA.
2. Articles that do not report follow-up data.
3. Case reports, editorials, or letters to the editor.
4. Non-English publications or those without full text available.

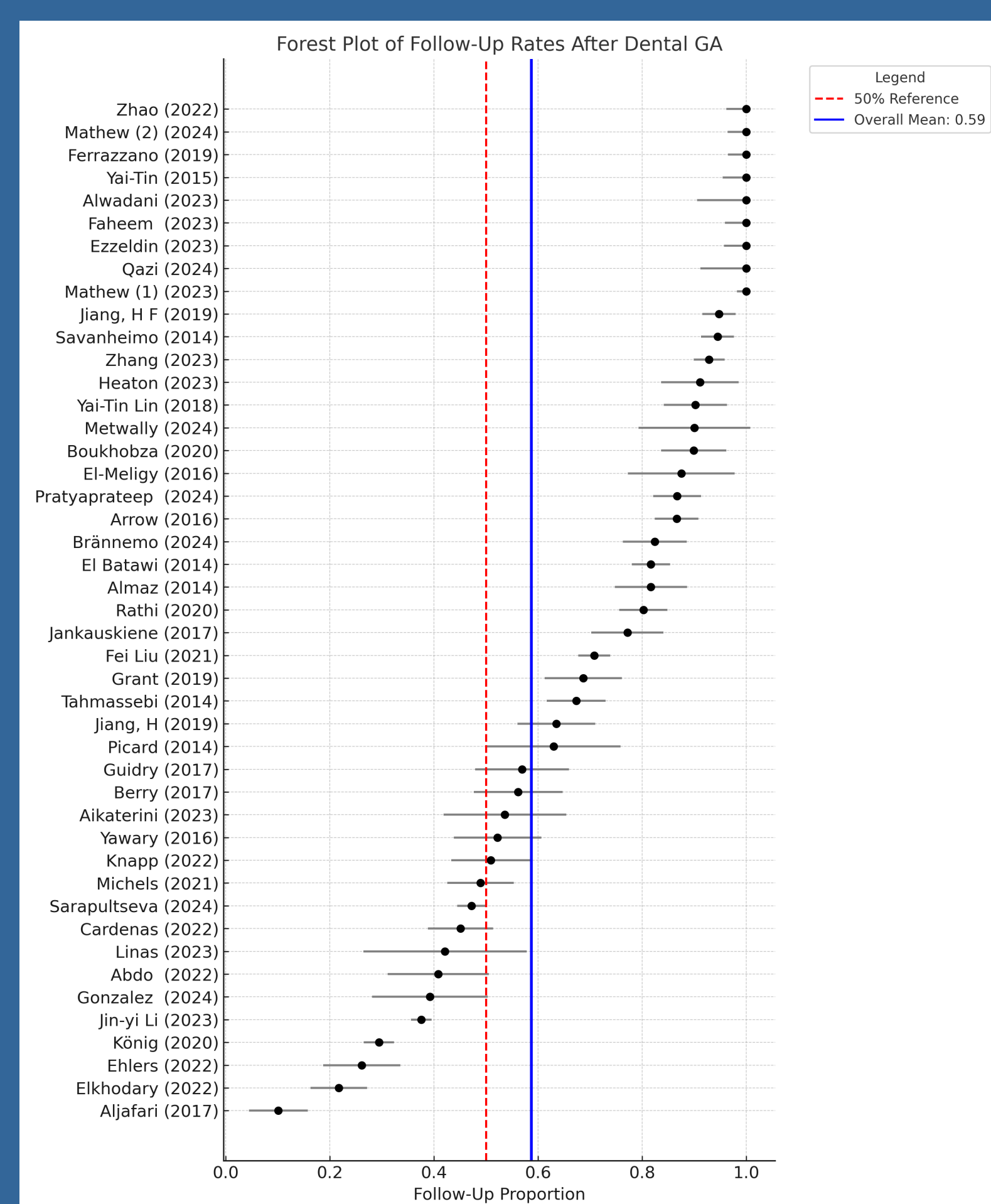


Figure 1. Forest plot showing follow-up proportions and 95% confidence intervals from 45 studies. The blue vertical line represents the overall weighted follow-up rate (58.7%). The red dashed line represents the 50% threshold benchmark.

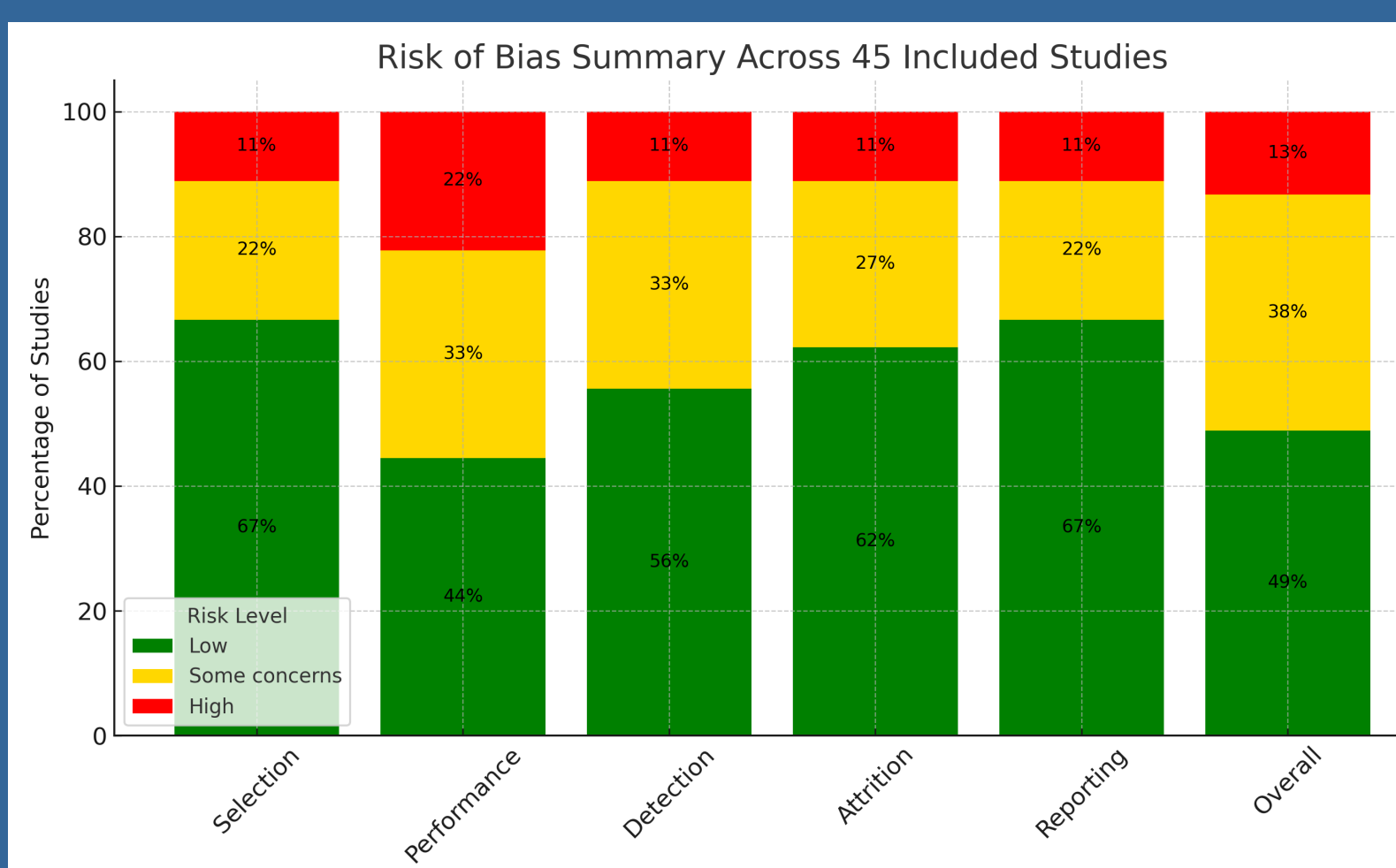


Figure 2. Risk of Bias Summary

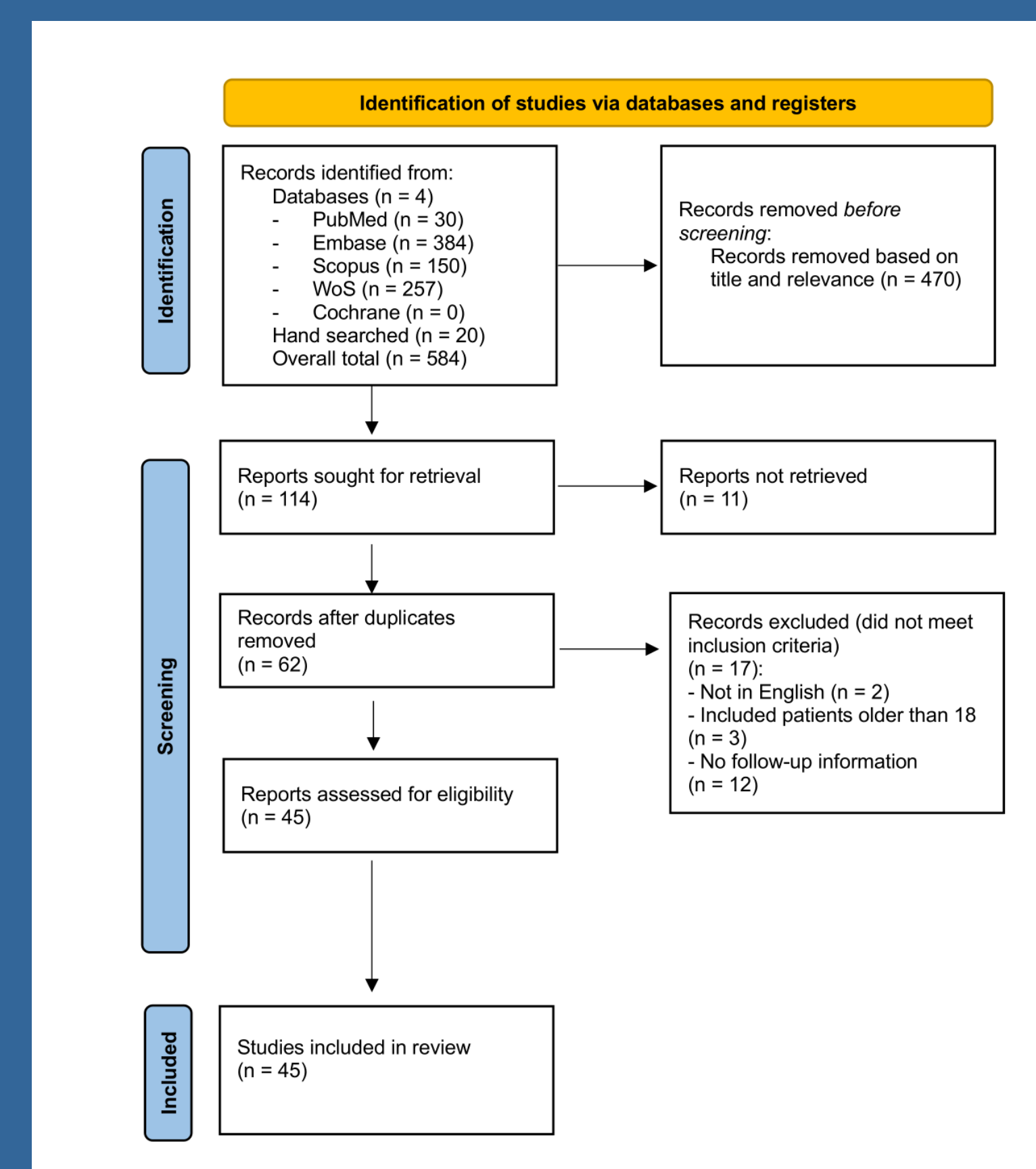


Figure 3. PRISMA

RESULTS

Meta-Analysis of Follow-Up Rates:

- ❖ 45 studies, 11,106 pediatric patients
- ❖ Weighted average follow-up rate: 58.7%
- ❖ Follow-up ranged from 10.1% to 100% (Fig. 1)

Predictors of Follow-Up Compliance (Multiple Logistic Regression):

- ❖ Follow-up time: OR = 1.003 (1.002–1.004), $p < 0.0001$
- ❖ Average age: OR = 0.881 (0.849–0.914), $p < 0.0001$
- ❖ Male (%): OR = 0.801 (0.782–0.821), $p < 0.0001$
- ❖ Special Needs (%): OR = 0.468 (0.366–0.598), $p < 0.0001$

Interpretation:

- ❖ Longer follow-up intervals improve return rates.
- ❖ Older children, male patients, and those with SHCN are less likely to return.

DISCUSSION

- ❖ The overall follow-up rate after dental treatment under general anesthesia (GA) among pediatric patients remains **suboptimal, averaging 58.7%** across 45 studies. This highlights a critical gap in continuity of care.
- ❖ **Longer follow-up** intervals were associated with **increased return rates**. In contrast, **older children, male patients**, and those with special healthcare needs (**SHCN**) had significantly **lower follow-up rates**, suggesting the need for targeted strategies.
- ❖ Beyond demographic factors, systemic and behavioral barriers may affect compliance. The findings support redesigning follow-up protocols and strengthening caregiver engagement.

CONCLUSION

- ❖ The average follow-up rate after dental GA remains suboptimal at **58.7%**, underscoring a major gap in post-operative care.
- ❖ **Younger age, female gender**, and **absence of SHCN** were associated with higher compliance.
- ❖ **Additional barriers** not directly measured but frequently cited in literature include:
 - Transportation difficulties
 - Low parental health literacy
 - Language barriers
 - Socioeconomic status
 - Lack of clear communication or reminders from providers
- ❖ Targeted interventions and improved recall systems are critical to improve outcomes and reduce recurrence, including:
 - Develop **standardized recall protocols** with automated appointment reminders.
 - Provide **visual/translated instructions** and engage **caregiver education** pre-discharge.
 - Integrate **case management or community health workers** to support high-risk families.
 - Consider **flexible scheduling**, including evening/weekend options for working parents.

References:

1. References
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3. Higgins JPT, et al. Cochrane Handbook for Systematic Reviews of Interventions. Version 6.2, 2021.
4. McGuinness LA, Higgins JPT. Risk-of-bias VISualization (robvis): Res Synth Methods. 2021;12(1):55–61.
5. Meta-analysis includes 45 peer-reviewed studies published between 2014–2024. (available upon request)