

INPLASY

Labia Minora Reduction Before 18 Years of Age: Indications, Decision-Making and Reported Outcomes. A Systematic Review and Meta-Analysis

INPLASY202660128

doi: 10.37766/inplasy2026.6.0128

Received: 27 June 2026

Published: 27 June 2026

Sen, S; Gulgel Sen, F.

Corresponding author:

Serhat Sen

serhatsen8@gmail.com

Author Affiliation:Istinye University Liv Hospital
Topkapı.**ADMINISTRATIVE INFORMATION****Support** - None.**Review Stage at time of this submission** - Completed but not published.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202660128**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 27 June 2026 and was last updated on 12 September 2026.**INTRODUCTION**

Review question / Objective What indications, decision-making practices and postoperative outcomes are described in original clinical reports of labia minora reduction before 18 years of age? The quantitative objectives are to estimate the proportions of patients with any reported postoperative complication and with postoperative reoperation or another procedural intervention using extractable age-specific event data. The descriptive objectives are to examine the clinical circumstances leading to surgery, report-level documentation of decision-making, and the relationship between the original indication and reported outcomes. No comparator is required. The unresolved upper age boundary in one included cohort is acknowledged rather than treated as verified eligibility.

Rationale Published reports of labia minora reduction before 18 years provide limited information about clinical selection, and younger

patients frequently appear within adult or mixed-age series. Differences in outcome ascertainment, surgical extent and follow-up limit interpretation of pooled morbidity. A clinically interpretable synthesis therefore considers the presenting problem, the decision to operate rather than defer, and the outcome against which surgery should be judged, alongside postoperative complications and further procedures. The revised manuscript includes selected case-based narratives and author-developed service and reporting proposals. These additions do not establish comparative benefit, age-specific comparative safety or a validated clinical guideline.

Condition being studied Labia minora reduction in patients targeted by an age-at-surgery criterion of younger than 18 years, including reported functional symptoms, appearance concerns or their overlap; clinical decision-making; postoperative morbidity; and subsequent procedural intervention. Age is a chronological eligibility criterion, not a claim of uniform pubertal

or developmental status. Reports involving younger or premenarchal children are identified explicitly and are not presented as developmentally equivalent to reports of older adolescents.

METHODS

Search strategy The current manuscript reports procedure-focused searches through 19 August 2026. The strategy did not require an adolescent or other age term, and no mandatory language, year or article-type restriction was applied. The PubMed strategy reported in Appendix 1 is:

(labiaplast*[tiab] OR labioplast*[tiab] OR nymphoplast*[tiab] OR nymphetom*[tiab] OR "labia minora reduction"[tiab] OR "labial reduction"[tiab] OR "labia reduction"[tiab] OR "reduction labiaplasty"[tiab] OR "reduction labioplasty"[tiab] OR "reduction nymphoplasty"[tiab] OR ("labia minora"[tiab] OR "labial hypertrophy"[tiab] OR "labia minora hypertrophy"[tiab]) AND (resection[tiab] OR excision[tiab] OR reduction[tiab] OR labioplasty[tiab] OR labiaplasty[tiab] OR nymphoplasty[tiab] OR nymphetomy[tiab] OR wedge[tiab] OR laser[tiab]))

The manuscript states that corresponding strategies were adapted for Embase, Scopus, Web of Science, CENTRAL, SciELO and TR Dizin. This amendment reproduces the strategy reported in the manuscript; separate platform-specific execution histories are not reproduced here. The earlier description of a mandatory adolescent-concept block is superseded by the procedure-focused strategy above.

Participant or population Eligibility targets patients undergoing labia minora reduction before 18 years of age, for any indication. The criterion is chronological age at surgery, without a separate lower age threshold based on a developmental definition of adolescence. Mixed-age cohorts may contribute to a quantitative outcome only where the relevant age-specific event numerator and denominator are available; whole-cohort events are not allocated to younger subgroups.

One included cohort, Jodoin and Dubuc, is reported as aged 12–18 years, and its upper age boundary cannot be resolved at patient level from the extracted data. Its inclusion remains an explicitly acknowledged eligibility limitation, with a post-hoc analysis excluding it. The intended criterion is not redefined as 18 years or younger,

and the pooled population is not described as verified to be entirely younger than 18.

Intervention Surgical reduction of the labia minora by any technique, including direct or edge excision, wedge-based or multistep approaches, and energy-assisted techniques. Procedures performed with concurrent clitoral hood reduction are eligible, but concurrent procedures are recorded separately. Symptom changes or morbidity in combined-procedure cohorts are not attributed exclusively to isolated labial reduction.

Comparator Not applicable. This is a non-comparative, single-arm meta-analysis of proportions; no comparator or control group is analysed.

Study designs to be included Original clinical reports, including observational cohorts, case series and case reports, may contribute to the review. Eligibility for narrative inclusion is distinguished from eligibility for quantitative pooling. Reports with two or fewer eligible patients are retained narratively rather than pooled. Reports with insufficient ascertainment for a broad any-complication endpoint may inform the clinical narrative without contributing to that pooled endpoint. This replaces the earlier blanket exclusion of single case reports. Non-primary reports do not contribute original patient outcomes.

Eligibility criteria Include original clinical reports of labia minora reduction with identifiable information relevant to patients targeted by the younger-than-18 age criterion. Apply outcome-specific eligibility for quantitative synthesis: an age-specific event numerator and denominator must be available, and the ascertainment must support the endpoint being pooled. Do not impute whole-cohort events to a younger subgroup.

Reports containing two or fewer eligible patients remain narrative-only. A favourable postoperative description does not justify coding zero complications. A report restricted to events requiring intervention may contribute to the procedural-reintervention endpoint without contributing to the broad any-complication endpoint. Potential cohort overlap is assessed using investigator group, institution, recruitment dates, patient characteristics and technique; potentially overlapping reports are not pooled together. The unresolved age-boundary exception and its exclusion sensitivity analysis are disclosed under Participant or population.

Information sources The revised manuscript identifies PubMed/MEDLINE, Embase, Scopus, Web of Science and CENTRAL, with supplementary Scielo and TR Dizin searches. ClinicalTrials.gov, WHO ICTRP, and backward and forward citation searching are additional identification routes. The reported search cut-off is 19 August 2026. Bibliographic databases, trial registers and citation searching are distinguished as separate source types.

Main outcome(s) The primary outcome remains the proportion of patients with at least one reported postoperative complication. Quantitative contributions require an eligible event numerator and denominator and sufficiently broad complication ascertainment. Complication categories follow the source reports. A favourable postoperative account is not automatically coded as zero events, and individual complication subtypes are not summed to reconstruct the composite because events may overlap within a patient. The summary proportion is reported with a 95% confidence interval and does not represent a uniform fixed-time or patient-specific risk.

Additional outcome(s) The secondary quantitative endpoint is reported postoperative reoperation or another procedural intervention. The intended focus is intervention related to complications, but incompletely specified reasons for revision limit the distinction between complication treatment and elective revision. Reported events are therefore not uniformly relabelled as complication-related reoperations.

Complication subtypes and report-specific symptom outcomes are described without assuming uniform ascertainment. Indications and decision-making are extracted separately from morbidity. The structured decision-making assessment covers eight core reports: the seven pooled reports and Lynch et al., not all 12 included reports. Domains include patient or parent involvement; assent or consent; psychological-assessment status; counselling about normal variation; conservative management or deferral; and capacity, legal or multidisciplinary context. Frequencies use reports, not patients, as the denominator. Non-reporting does not establish non-performance. Proposed adult reassessment is not an outcome already measured across the included studies.

Data management Records were deduplicated using DOI, PMID and normalised-title matching. The current manuscript describes title/abstract screening, full-text eligibility assessment, data

extraction and appraisal as a single-reviewer process conducted by Serhat Şen (SS). No independent duplicate-review process or inter-reviewer agreement statistic is reported. The earlier description of two-reviewer screening and consensus resolution is corrected accordingly.

Extracted information comprises study design, country, sample size, reported ages, surgical technique, concurrent procedures, follow-up, complications and subsequent procedures. Report-level and outcome-specific eligibility are kept separate. Indications and decision-making are considered separately from morbidity.

The manuscript discloses AI-assisted language editing, manuscript organisation, prioritisation of records for reviewer attention and analytic cross-checking. Such assistance is not counted as a second reviewer.

Quality assessment / Risk of bias analysis The revised manuscript reports appraisal by Serhat Şen (SS) alone, not by two independent reviewers. Case series are appraised using the Joanna Briggs Institute framework, and narrative case reports are considered using the Murad framework. Overall study-level risk-of-bias categories are not used as statistical weights. GRADE principles are applied to confidence in the pooled proportions rather than to a comparative treatment effect. The current manuscript rates no pooled study at low overall risk of bias.

Strategy of data synthesis The primary quantitative synthesis uses random-intercept logistic generalised linear mixed models with binomial likelihoods and logit links. Zero-event studies are retained without continuity correction in the primary model. The model intercept is back-transformed to obtain the pooled proportion; primary confidence intervals are Wald intervals on the logit scale. Study-level forest-plot intervals are Wilson intervals. Between-study variance and I^2 are interpreted cautiously because few studies contribute.

A separate two-stage logit random-effects analysis uses Paule-Mandel heterogeneity estimation and Hartung-Knapp adjustment. Continuity correction for zero-event studies is confined to this two-stage sensitivity analysis, not the primary GLMM. Hartung-Knapp results are not presented as intervals obtained directly from the primary GLMM.

Indications, decision-making, selected clinical narratives and report-specific symptom outcomes are synthesised descriptively. Report-level

frequencies are not converted to patient-level clinical rates. No formal meta-regression or funnel-plot asymmetry test is undertaken.

Subgroup analysis No quantitative technique, indication- or developmental-stage-specific comparative effectiveness claim is made. Surgical techniques, concurrent procedures and clinical circumstances are described narratively. The case-based interpretation added during revision uses selected reports already included in the review and does not introduce new quantitative subgroups. Analyses omitting selected cohorts are reported as sensitivity analyses rather than as evidence of a subgroup treatment effect.

Sensitivity analysis The revised manuscript reports leave-one-out analyses for both pooled endpoints; the two-stage logit random-effects analysis with Paule-Mandel estimation and Hartung-Knapp adjustment; omission of cohorts with frequent concurrent clitoral hood reduction; and omission of studies rated at high overall risk of bias.

The frequent-concurrent-procedure exclusions are Qin et al. and Pardo Schanz et al. The high-risk-of-bias exclusions are Jothilakshmi et al., Bragagnini Rodríguez et al. and Ochoa Gibert et al. An additional analysis excluding Jodoin and Dubuc because of its unresolved 12–18-year age range is explicitly post hoc. These details describe the revised analysis set; their inclusion in this update does not establish that every analysis was prospectively specified.

Language restriction None. A multilingual search (English, Spanish, French, Portuguese) was conducted; non-English reports were translated for screening and extraction.

Country(ies) involved Turkey.

Other relevant information The review remains retrospectively registered as INPLASY202660128 on 27 June 2026, after data extraction and analysis had been completed. This submission is a post-completion correction and update of that record, not a prospective registration, withdrawal or new registration. The manuscript now reports a search cut-off of 19 August 2026. The original registration date, reported search cut-off and date of this amendment are distinct and are not presented as dates of prospective methodological specification.

The update corrects descriptions of reviewer number and author contributions, revises the reported search approach and eligibility

description, clarifies outcomes and synthesis, and adds the revised narrative and reporting scope. Case-based interpretation was added during manuscript revision using already included reports, without adding new reports or quantitative subgroups for that narrative addition.

Minimum service capabilities, indication-linked reporting and reassessment after age 18 are author-developed proposals for evaluation, not measured pooled outcomes, validated criteria or a consensus guideline. An initial reassessment window of 18–21 years and at least 12 months after surgery is proposed as a research interval. It includes cross-checking the adult patient's account and subsequent-care records against the original indication and early outcome, with explicit follow-up completeness. Reporting is organised with reference to PRISMA 2020 and PRISMA-S.

Keywords adolescence; labiaplasty; labia minora reduction; postoperative complications; procedural reintervention; decision-making.

Dissemination plans Submission of the revised systematic review and meta-analysis to BMC Women's Health, accompanied by the relevant supplementary methods, tables, figures and reporting checklists. The target journal is updated; acceptance or publication is not implied.

Contributions of each author

Serhat Şen and Feyza Gülgel Şen remain the authors listed in the current manuscript. Single-reviewer conduct is not a change to a single-author byline.

Author 1 - Serhat Şen: conceived the review, performed study selection, data extraction and analysis, and drafted the manuscript. Study selection, extraction and appraisal are attributed to SS alone in the revised manuscript.

Email: serhatsen8@gmail.com

Author 2 - Feyza Gülgel Şen: contributed to interpretation and critical revision. The earlier attribution of screening, data extraction and risk-of-bias assessment to FGS is corrected; she is not described as a second independent reviewer.

Email: feyzaa.gulgell@hotmail.com