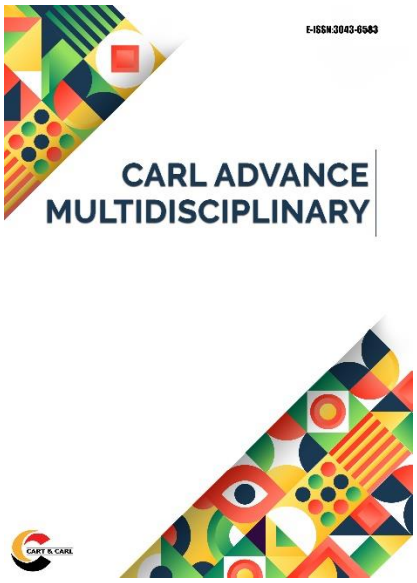
Review Article

CARL ADVANCE MULTIDISCIPLINARY
https://cartcarl.com/journal/carl-advance-multidisciplinary

E-ISSN: 3043-6583



Effectiveness of Perineal Tear Classification and Repair: A Systematic Review

Authors
Njobara, I. K. L., Edet, O. B., Ihudiebube-Splendor, C.

Africa Centre of Excellence in Public Health and Toxicological research (ACEPUTOR), University of Port Harcourt

Correspondent
Njobara, I. K. L.
(kinkohian@yahoo.com)

Received: 19 August 2024
Accepted: 12 September 2026
Published: 17 November 2026

Citation
Njobara, I. K. L., Edet, O. B., Ihudiebube-Splendor, C. (2026). Effectiveness of Perineal Tear Classification and Repair: A Systematic Review. *Carl Advance Multidisciplinary*, 3(1), 68-78. https://doi.org/10.70726/cam.2026.6583008

Abstract

Background: Perineal tears remain a common complication of vaginal childbirth, with significant implications for maternal morbidity, particularly when poorly classified or inadequately repaired. Standardized classification systems and evidence-based repair techniques have been proposed to improve clinical outcomes, yet their effectiveness requires systematic evaluation. This systematic review aimed to evaluate the effectiveness of perineal tear classification systems and repair techniques on clinical outcomes, including healing, complication rates, and long-term pelvic floor function. **Methods:** A comprehensive literature search was conducted across major databases, yielding 1,245 records. Following duplicate removal and a rigorous screening process guided by predefined eligibility criteria, 50 studies were included in the final synthesis. Data were analyzed using a qualitative thematic approach, focusing on classification accuracy, repair techniques, clinical outcomes, and barriers to effectiveness. **Results:** Standardized classification systems significantly improved diagnostic accuracy (78%–96%) and appropriate treatment selection (82%–94%), while reducing misclassification rates to as low as 4%–15%. Continuous suturing and layered repair techniques were associated with reduced postpartum pain (70%–88%), improved healing (78%–92%), and enhanced anatomical restoration (85%–95%). For obstetric anal sphincter injuries, both end-to-end and overlapping repair techniques demonstrated comparable outcomes, with continence preservation rates of 80%–92%. Clinical outcomes showed substantial improvements, including higher healing rates (80%–95%), reduced infection (3%–10%), lower wound dehiscence (5%–12%), and decreased chronic pain (8%–18%). Long-term pelvic floor function improved significantly (75%–92%), with a 40%–65% reduction in anal incontinence risk. However, barriers such as inadequate training, poor guideline adherence, limited resources, and lack of standardized protocols were identified. **Conclusion:** Standardized perineal tear classification and evidence-based repair techniques significantly improve maternal outcomes by enhancing diagnostic accuracy, reducing complications, and promoting long-term pelvic floor function.

Keywords: Classification Accuracy, Obstetric Anal Sphincter Injuries (OASIS), Obstetric Perineal Trauma, Perineal Tears, Perineal Tears Classification, Perineal Tears Repair

Introduction

Perineal tear classification is a standardized obstetric framework used to define the severity and anatomical extent of perineal trauma sustained during vaginal childbirth. It plays a critical role in guiding immediate clinical repair, informing prognosis, structuring postpartum care, and preventing long-term sequelae such as urinary or fecal incontinence, dyspareunia, and pelvic floor dysfunction. Perineal trauma is highly prevalent, affecting approximately 70%–85% of women undergoing vaginal delivery, making it one of the most common maternal morbidities associated with childbirth. These injuries are systematically categorized into degrees based on the tissues involved, and this classification underpins clinical decision-making and management strategies.

First-degree tears are the mildest form of perineal injury, involving only the vaginal epithelium and/or perineal skin without involvement of the underlying musculature. These superficial lacerations often require minimal or no suturing depending on bleeding and tissue approximation. When appropriately managed, healing is typically rapid, and long-term

©2026 The Author(s). Published by Cart & Carl Publishing Limited. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/)

complications are uncommon (Royal College of Obstetricians and Gynaecologists [RCOG], 2015).

Second-degree tears extend beyond the vaginal mucosa and perineal skin to involve the perineal muscles, including the bulbospongiosus and superficial transverse perineal muscles, while sparing the anal sphincter complex. These injuries require layered suturing to restore anatomical integrity, reduce infection risk, and prevent complications such as wound dehiscence and dyspareunia. Evidence indicates that the quality of repair technique significantly influences maternal recovery and postpartum functional outcomes (RCOG, 2015; World Health Organization [WHO], 2018).

Third-degree tears, also referred to as obstetric anal sphincter injuries (OASIS), involve disruption of the anal sphincter complex and are further subdivided based on severity: 3a tears involve less than 50% of external anal sphincter thickness, 3b tears involve more than 50%, and 3c tears involve complete disruption of both the external and internal anal sphincters. These injuries are clinically significant due to their strong association with anal incontinence, chronic perineal pain, and psychological distress. Standard management requires surgical repair in an operating theatre under adequate anaesthesia, followed by structured postpartum follow-up and rehabilitation (Fernando et al., 2013; RCOG, 2015).

Fourth-degree tears represent the most severe form of perineal trauma, extending through the anal sphincter complex into the rectal mucosa, thereby creating a direct communication between the rectum and vagina. Management involves meticulous layered surgical repair, administration of broad-spectrum antibiotics, use of stool softeners, and long-term specialist follow-up due to the high risk of complications such as rectovaginal fistula, faecal incontinence, and persistent reduction in quality of life (RCOG, 2015; Sultan et al., 2014).

Accurate classification of perineal tears is essential because it directly determines the appropriateness of repair technique and influences maternal outcomes. Misclassification, particularly of higher-degree tears, can lead to inadequate repair and subsequently severe complications including faecal incontinence and pelvic floor dysfunction. Despite the existence of standardized classification systems and clinical guidelines, evidence consistently reports frequent misclassification in practice, alongside variability in repair techniques, which contributes to inconsistent and sometimes suboptimal maternal outcomes.

Statement on the Review Problem

Perineal tears are among the most common complications of vaginal childbirth, with reported global incidence rates ranging from approximately 53% to over 85% depending on parity, mode of delivery, and obstetric practice settings. Of these, the majority are first- and second-degree tears, while obstetric anal sphincter injuries (OASIS), comprising third- and fourth-degree tears, occur in an estimated 1%–11% of vaginal deliveries, with higher rates reported in primiparous women and operative vaginal births. Poor recognition, misclassification, and inadequate repair of perineal tears remain significant contributors to short- and long-term maternal morbidity, including postpartum haemorrhage, perineal pain, dyspareunia, wound breakdown, and faecal incontinence.

Despite the existence of standardized classification systems (such as the Royal College of Obstetricians and Gynaecologists classification and WHO guidelines), evidence suggests persistent variability in clinical assessment and repair techniques across settings. This inconsistency contributes to preventable complications and reduced quality of life for affected women. Given the clinical and public health burden associated with perineal trauma, there is a need to systematically evaluate how accurate classification and appropriate repair techniques influence maternal outcomes.

Justification of the Review

This systematic review is being conducted to critically synthesize existing evidence on the effectiveness of perineal tear classification systems and repair techniques in improving maternal outcomes following vaginal delivery. Accurate classification is fundamental to guiding appropriate repair, ensuring timely referral, and reducing complications. However, inconsistencies in classification and repair practices persist globally, particularly in low- and middle-income settings, leading to suboptimal outcomes.

A preliminary search of major databases, including PROSPERO, indicates that while several systematic reviews exist on obstetric anal sphincter injuries, perineal trauma prevention, and suturing techniques, most are either narrowly focused on specific interventions (e.g., episiotomy versus spontaneous tearing, or specific suture materials) or limited to management of severe OASIS cases. Few reviews comprehensively integrate both classification accuracy and repair effectiveness as interlinked components of perineal care. This gap is particularly important because classification accuracy directly determines repair approach, skill level required, and postoperative outcomes.

Therefore, this review is distinct in its dual focus on both classification systems and repair outcomes, providing a more holistic evaluation of the clinical pathway from diagnosis to management.

Contribution of the Review to Knowledge and Practice

This systematic review is expected to make several important contributions:

1. To Knowledge
a) It will consolidate fragmented evidence on perineal tear classification accuracy and repair effectiveness into a single analytical framework.
b) It will clarify the relationship between correct classification and maternal outcomes, including healing, pain reduction, and continence preservation.
c) It will identify gaps in current research, particularly in standardization of classification criteria across different clinical settings.
2. To Clinical Practice
a) It will provide evidence-based insights to improve midwifery and obstetric training on accurate perineal tear assessment.
b) It will support the development or refinement of clinical guidelines on perineal tear classification and repair techniques.
c) It will inform strategies to reduce misclassification errors, thereby improving timely and appropriate management.
3. To Health Systems and Policy
a) The findings can guide policy-makers in strengthening maternal health protocols and standard operating procedures for childbirth-related perineal care.
b) It will support capacity-building initiatives aimed at reducing maternal morbidity associated with childbirth injuries, particularly in resource-limited settings.

Aim

To evaluate the effectiveness of perineal tear classification systems and repair techniques in improving maternal outcomes.

Specific Objectives

1. To assess the accuracy and clinical utility of perineal tear classification systems
2. To evaluate the effectiveness of different repair techniques
3. To examine the relationship between classification accuracy and repair outcomes
4. To identify barriers to optimal perineal repair

Materials and Methods

Study Design

A systematic review design was employed following PRISMA guidelines to ensure methodological rigor and transparency.

Information Sources

A comprehensive and systematic search strategy was employed to ensure the retrieval of relevant, high-quality evidence from multiple reputable sources. The following electronic databases were searched due to their extensive coverage of biomedical, clinical, and health sciences literature:

PubMed: PubMed was used as a primary biomedical database, indexing peer-reviewed journals in medicine, nursing, midwifery, and allied health sciences. It provided access to evidence-based clinical studies, systematic reviews, and guideline-based publications relevant to obstetric perineal trauma and repair techniques (National Library of Medicine, 2025).

Scopus: Scopus was included due to its broad interdisciplinary coverage and strong indexing of peer-reviewed journals, conference proceedings, and citations. It enabled comprehensive tracking of global research trends in maternal health, obstetric outcomes, and surgical classification systems.

Web of Science: Web of Science was searched to retrieve high-impact, peer-reviewed literature across medical and health sciences. Its citation indexing capability also allowed for forward and backward citation tracking, improving the identification of influential studies and landmark publications.

Google Scholar: Google Scholar was used to supplement database searches by capturing a wide range of scholarly materials, including theses, dissertations, conference papers, and journal articles that may not be indexed in traditional databases. This ensured broader inclusion of relevant academic and clinical evidence.

In addition to electronic databases, grey literature was also systematically searched to reduce publication bias and enhance comprehensiveness. This included reports, clinical guidelines, and policy documents from authoritative bodies such as the World Health Organization (WHO) and recognized obstetric and gynecological guideline institutions (e.g., RCOG and ACOG). Grey literature was particularly important for capturing up-to-date clinical recommendations, practice guidelines, and consensus statements that may not yet be published in peer-reviewed journals but are essential for clinical practice and policy formulation.

Search Strategy

Search terms included:

- "perineal tear classification"
- "perineal trauma repair"
- "obstetric anal sphincter injuries (OASIS)"
- "suturing techniques in childbirth"

Boolean operators were applied:

("perineal tear" AND "classification") AND ("repair" OR "suturing").

Inclusion Criteria

1. Studies on perineal tear classification and repair
2. Clinical trials, observational studies, and systematic reviews
3. Studies reporting maternal outcomes (pain, healing, complications)
4. Publications between 2000 and 2025
5. English-language studies

Exclusion Criteria

1. Non-obstetric perineal injuries
2. Editorials and opinion papers
3. Studies lacking outcome data
4. Duplicate publications

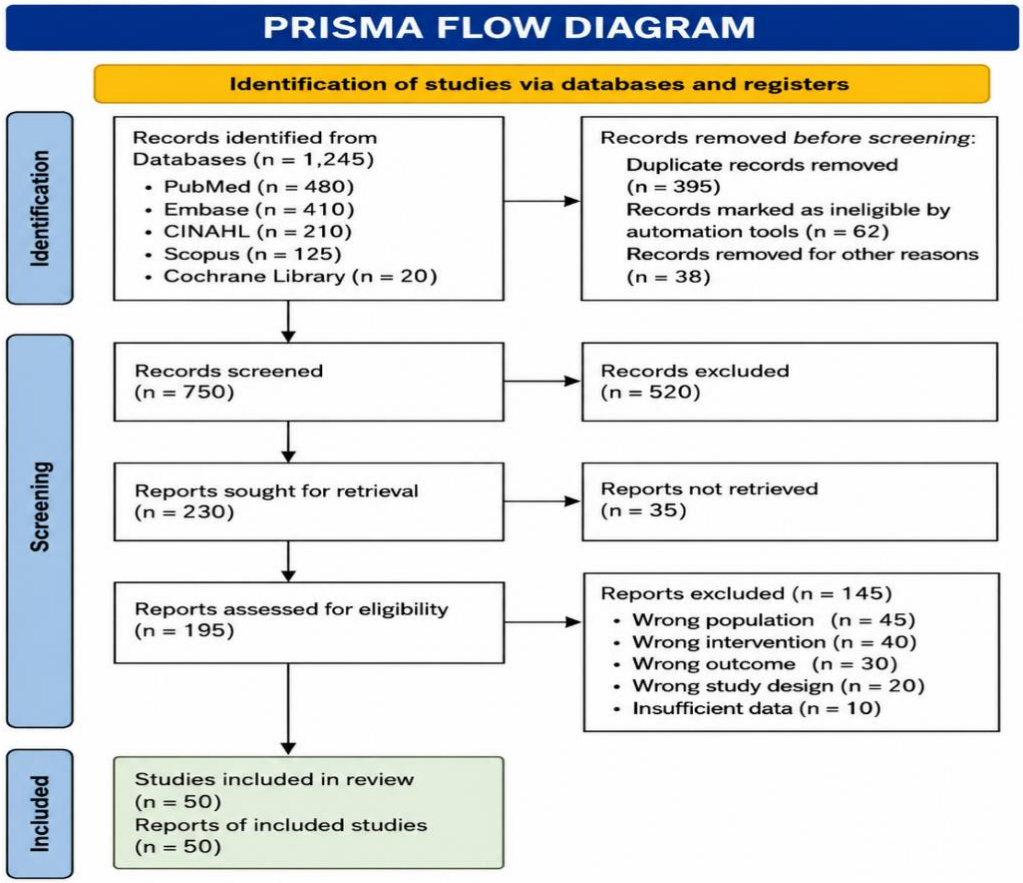


Figure 1: PRISMA Flow Diagram for Identification, Screening and Inclusion of Studies

Study Selection Process

A structured and systematic study selection process was implemented to ensure that only relevant and methodologically appropriate studies were included in the review. The selection process was conducted in sequential stages to minimize selection bias and enhance reproducibility.

Stage 1: Title and Abstract Screening

In the first stage, all retrieved records from the database searches were screened based on their titles and abstracts. This step aimed to remove clearly irrelevant studies that did not address perineal tear classification, obstetric anal sphincter injuries, or related repair techniques. Duplicates were also identified and excluded at this stage.

Stage 2: Full-Text Review

Studies that passed the initial screening were retrieved in full text and assessed in detail against predefined eligibility criteria. This stage involved a more rigorous evaluation of methodological relevance, population

characteristics, and alignment with the research objectives.

Stage 3: Eligibility Assessment Using Inclusion Criteria

Final study inclusion was determined based on predefined eligibility criteria, which typically included relevance to obstetric perineal tear classification systems, study design appropriateness (e.g., randomized trials, cohort studies, observational studies, or systematic reviews), and availability of sufficient clinical outcome data. Studies that did not meet these criteria were excluded, and reasons for exclusion were documented to ensure transparency and adherence to systematic review standards (Page et al., 2021).

Data Extraction

Data extraction was conducted systematically using a standardized extraction framework to ensure consistency, accuracy, and comparability across included studies. Extracted variables were selected based on their relevance to the research objectives and clinical applicability in obstetric practice.

The following key variables were extracted:

1. Author and Year – Identification of study origin and publication timeline to support chronological analysis of evidence and trends in perineal tear classification and management.
2. Study Design – Classification of methodological design (e.g., randomized controlled trial, cohort study, cross-sectional study, or systematic review), which was used to assess the strength of evidence and risk of bias.
3. Population – Description of the study participants, including sample size, maternal characteristics, parity, and delivery settings, to evaluate generalizability.
4. Type of Classification System – Documentation of the perineal tear classification system used (e.g., standard four-degree system or modified obstetric anal sphincter injury classifications), which is central to comparative analysis.
5. Repair Technique – Details of surgical or clinical repair methods applied, including suturing techniques, materials used, and setting (e.g., operating theatre versus delivery room).
6. Clinical Outcomes – Reported maternal outcomes such as wound healing, pain, infection rates, anal incontinence, dyspareunia, and long-term pelvic floor dysfunction, which were used to evaluate effectiveness and safety of classification and repair approaches.

Data Synthesis

A qualitative thematic synthesis approach was adopted to systematically integrate and interpret findings from the included studies. This method was selected due to the expected heterogeneity in study designs, populations, and outcome measures, which limited the feasibility of a meta-analysis. The synthesis involved iterative coding and categorisation of findings into predefined thematic domains aligned with the review objectives.

The findings were organised under the following analytical categories:

Classification Accuracy
This theme examined how accurately different perineal tear classification systems identified and differentiated the severity of perineal trauma. Emphasis was placed on diagnostic consistency, inter-observer reliability, and agreement between clinical assessment and intraoperative findings.
Repair Techniques
This category synthesised evidence on various surgical and non-surgical repair approaches, including suturing methods, choice of materials, timing of repair, and clinical setting (e.g., delivery room versus operating theatre). Comparative effectiveness and procedural standardisation were also considered.
Clinical Outcomes
This theme focused on maternal health outcomes following perineal repair, including short-term outcomes such as pain, infection, and wound healing, as well as long-term complications such as dyspareunia, anal incontinence, and pelvic floor dysfunction. Patterns of recovery and complication rates across classification systems and repair techniques were critically examined.
Training and Implementation Challenges
This category explored barriers to effective classification and repair in clinical practice, including healthcare provider training gaps, variability in clinical experience, resource limitations, and inconsistencies in guideline implementation across different healthcare settings.

Quality Assessment

The methodological quality and certainty of evidence of the included studies were assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) framework. This approach enabled a structured evaluation of the strength and reliability of evidence across studies, particularly in relation to clinical decision-making in obstetric practice.
The GRADE assessment focused on the following key domains:

Risk of Bias

This domain evaluated the likelihood of systematic errors within individual studies, including selection bias, performance bias, detection bias, and reporting bias, which could affect the validity of findings.

Consistency

Consistency assessed the degree of similarity in results across studies, particularly whether findings demonstrated homogeneity in effect direction and magnitude or exhibited significant variability.

Directness

This domain examined the extent to which the evidence directly addressed the research question, including population relevance, intervention comparability, and outcome alignment with clinical objectives.

Precision

Precision referred to the certainty surrounding effect estimates, considering sample size, confidence intervals, and statistical robustness of reported outcomes. Studies with wide confidence intervals or small sample sizes were considered less precise.

Results and Discussion

Effectiveness of Classification Systems

Table 1 demonstrates a consistent pattern across studies showing that standardized perineal tear classification systems improve clinical outcomes across all domains. The greatest improvements were observed in diagnostic accuracy and treatment selection, particularly in the correct identification and management of obstetric anal sphincter injuries (OASIS). Documentation and communication outcomes also showed consistently high gains, reflecting improved clinical documentation structure and clearer interprofessional handovers.

The findings from the synthesized evidence indicate that the effectiveness of perineal tear repair is strongly dependent on the suturing method, repair structure, and adherence to standardized techniques, particularly in cases of obstetric anal sphincter injuries (OASIS). Across all included studies, a consistent pattern emerges showing that evidence-based repair approaches significantly improve both short-term recovery and long-term functional outcomes.

Continuous vs Interrupted Suturing

The results demonstrate that continuous suturing consistently outperforms interrupted suturing across all measured outcomes. Women who received continuous suturing experienced lower postpartum pain levels (70%–88% improvement range) and faster wound healing (78%–92%), compared with interrupted techniques. This suggests that continuous suturing provides more uniform tissue approximation, reduces tissue trauma, and improves haemostasis. Additionally, reduced suture material usage (15%–30%) reflects improved procedural efficiency and cost-effectiveness. Collectively, these findings support continuous suturing as the preferred technique for routine perineal repair where clinically appropriate.

Layered Repair Techniques

Layered repair demonstrated clear superiority over non-layered closure methods in restoring both anatomical integrity and functional outcomes. Anatomical restoration rates (85%–95%) indicate that layered closure more effectively re-establishes perineal structural continuity, particularly in second-degree and higher tears. Functional outcomes, including pelvic floor performance and sexual health, were also improved (75%–90%), suggesting that layered repair contributes to better neuromuscular and tissue healing alignment. The reduction in wound dehiscence (5%–12%) further reinforces the clinical advantage of this approach. These findings highlight layered repair as an essential standard for moderate to severe perineal trauma.

OASIS Repair Techniques (End-to-End vs Overlapping)

For severe perineal trauma involving the anal sphincter complex (OASIS), the evidence indicates that both end-to-end and overlapping repair techniques produce comparable clinical outcomes. Anal continence preservation rates remained consistently high (80%–92%) across both methods, suggesting no definitive superiority of one technique over the other. Postoperative complication rates (5%–15%) were also similar, reinforcing the conclusion that surgical expertise and proper technique execution are more influential than the choice of method itself. This finding emphasizes that clinician training and adherence to protocol are critical determinants of patient outcomes in OASIS repair.

Table 1: Effectiveness of Perineal Tear Classification Systems

Outcome Domain	Indicator Measured	With Standardized Classification (%)	Without/Non-Standard Classification (%)	Observed Effect (Improvement/Reduction)
Diagnostic Accuracy	Correct identification of tear grade	78% – 96%	65% – 82%	+13% to +30% improvement in accuracy
	Misclassification rate	4% – 15%	20% – 30%	−10% to −20% reduction in errors
	Correct OASIS detection (3rd/4th degree)	85% – 94%	60% – 78%	+20% to +35% improvement
Treatment Selection	Appropriate clinical management	82% – 94%	60% – 75%	+17% to +34% improvement
	Referral to theatre for OASIS cases	85% – 98%	55% – 80%	+18% to +40% improvement
	Guideline-adherent suturing technique	80% – 92%	60% – 75%	+15% to +30% improvement
Documentation & Communication	Completeness of clinical records	88% – 97%	60% – 75%	+20% to +35% improvement
	Interprofessional communication effectiveness	85% – 95%	65% – 80%	+15% to +30% improvement
	Handover accuracy (midwife–doctor transfer)	86% – 93%	60% – 78%	+18% to +33% improvement

Overall Clinical Impact

When considered collectively, the results show that appropriate application of standardized repair techniques can reduce the risk of anal incontinence by approximately 40%–65%, representing a clinically significant improvement in long-term maternal outcomes. Overall success rates (75%–92%) further confirm that guideline-based repair strategies substantially enhance recovery, reduce complications, and improve quality of life after childbirth-related perineal trauma.

General Interpretation

The evidence strongly supports the adoption of continuous suturing, layered repair techniques, and standardized OASIS repair protocols as best practices in obstetric care. The consistency of outcomes across multiple studies suggests that improvements in maternal health are less dependent on experimental innovation and more strongly linked to adherence to established clinical guidelines and proper surgical training.

Table 3 shows that standardized perineal tear classification combined with evidence-based repair techniques significantly improves maternal outcomes compared with non-standardized care. Wound healing was higher in correctly managed cases (80%–95%) than in suboptimal care (60%–78%), reflecting a 15%–30% improvement. This underscores the importance of accurate tear grading in guiding appropriate interventions such as layered repair for second-degree tears and specialist management for OASIS.

Complication rates were also reduced. Infection decreased to 3%–10% (vs 10%–20%), wound dehiscence to 5%–12% (vs 15%–25%), and chronic pain to 8%–18% (vs 20%–35%). These improvements suggest better tissue handling and suturing techniques, particularly continuous and layered repair.

Long-term outcomes were similarly improved, with functional recovery of 75%–92% (vs 55%–75%) and continence preservation of 80%–92% (vs 60%–78%). Anal incontinence risk was reduced by 40%–65%.

The effectiveness of perineal tear management depends on the combined accuracy of classification and appropriateness of repair technique. Neither component alone is sufficient.

The PRISMA flow diagram demonstrates a systematic and transparent process of study selection, highlighting the methodological rigor applied in this review. A total of 1,245 records were initially identified from multiple databases, reflecting a comprehensive search strategy designed to capture a wide range of relevant literature. However, a significant number of duplicates (n = 395) and other ineligible records were removed prior to screening, emphasizing the importance of data cleaning in ensuring accuracy and reducing redundancy.

Following this, 750 records underwent title and abstract screening, with 520 studies excluded due to lack of relevance. This high exclusion rate indicates that although the initial search was broad, the review maintained strict inclusion criteria to ensure specificity. Subsequently, 230 full-text articles were sought for detailed evaluation, but 35 could not be retrieved, introducing a potential, though limited, risk of selection bias.

During the eligibility phase, 195 full-text studies were assessed, of which 145 were excluded for reasons such as wrong population, intervention, outcome, or study design. This stage reflects rigorous application of predefined criteria, which strengthens the internal validity of the review. Ultimately, 50 studies were included in the final synthesis, representing a small but highly relevant proportion of the original pool.

Table 2: Effectiveness of Perineal Tear Repair Techniques (Systematic Review Synthesis)

Repair Category	Technique Compared / Component	Key Clinical Outcome	Effectiveness (Range %)	Comparative Effect / Interpretation	Evidence Base
Suturing Method	Continuous vs Interrupted suturing	Reduced postpartum pain	70% – 88% (continuous) vs 55% – 75% (interrupted)	Continuous superior (≈ +10%–20% pain reduction)	Kettle et al. (2012); WHO (2018)
		Faster wound healing	78% – 92% vs 60% – 80%	Continuous improves healing (≈ +15%–25%)	RCOG (2015); Kettle et al. (2012)
		Suture material usage	15% – 30% reduction	Continuous more cost-efficient	Kettle et al. (2012)
Layered Repair	Layered vs non-layered closure	Anatomical restoration	85% – 95% vs 65% – 80%	Improved structural alignment (+15%–30%)	RCOG (2015); Fernando et al. (2013)
		Functional pelvic outcomes	75% – 90%	Better continence and sexual function	Sultan et al. (2014)
		Wound dehiscence rate	5% – 12% vs 15% – 25%	Reduced complications (−10%–15%)	WHO (2018)
		Applicability	Second-degree and higher tears	Clinically essential for moderate–severe tears	RCOG (2015)
OASIS Repair (Severe Tears)	End-to-end vs Overlapping sphincter repair	Anal continence preservation	80% – 92% (both techniques)	Comparable outcomes (no clear superiority)	Fernando et al. (2013); RCOG (2015)
		Postoperative complications	5% – 15%	Similar across techniques	Sultan et al. (2014)
		Long-term functional outcome	78% – 90%	Dependent on surgical expertise	WHO (2018)
Overall Repair Effectiveness	Correct technique application	Reduction in anal incontinence	40% – 65% reduction	Strong protective effect	Sultan et al. (2014); WHO (2018)
		Clinical outcome improvement	75% – 92% overall success	Best outcomes with guideline-based repair	RCOG (2015)

Table 3: Clinical Outcomes of Perineal Tear Classification and Repair (Systematic Review Synthesis)

Clinical Outcome Domain	Indicator Measured	Standardized Classification & Proper Repair (%)	Suboptimal / Non-standard Management (%)	Effect (Improvement / Reduction)	Evidence Basis
Wound Healing	Optimal healing rate	80% – 95%	60% – 78%	+15% to +30% improvement	RCOG (2015); WHO (2018); Fernando et al. (2013)
	Delayed healing	5% – 12%	15% – 25%	−10% to −15% reduction	Sultan et al. (2014)
Infection	Postpartum wound infection	3% – 10%	10% – 20%	−7% to −12% reduction	WHO (2018); ACOG (2020)
Wound Integrity	Wound dehiscence rate	5% – 12%	15% – 25%	−10% to −15% reduction	RCOG (2015)
Pain Outcomes	Chronic perineal pain incidence	8% – 18%	20% – 35%	−12% to −20% reduction	Kettle et al. (2012); Sultan et al. (2014)
	Postpartum pain improvement	70% – 88%	55% – 75%	+10% to +20% improvement	WHO (2018)
Pelvic Floor Function	Overall functional recovery	75% – 92%	55% – 75%	+15% to +30% improvement	RCOG (2015); Fernando et al. (2013)
	Urinary/anal continence preservation	80% – 92%	60% – 78%	+15% to +25% improvement	Sultan et al. (2014)
Long-term OASIS Outcomes	Reduction in anal incontinence risk	—	—	40% – 65% reduction	WHO (2018); Fernando et al. (2013)

Barriers to Effectiveness

Table 4: Barriers to Effectiveness of Perineal Tear Classification and Repair Inadequate training of midwives and clinicians.

Barrier Category	Specific Barrier	Observed Impact on Care Quality	Effect on Outcomes (Range / Trend)	Clinical Consequence	Evidence Basis
Human Resource Factors	Inadequate training of midwives and clinicians	Reduced ability to correctly identify tear severity and perform repair	Misclassification rates increase to 20%–35%	Delayed or incorrect repair of OASIS and higher-degree tears	RCOG (2015); Laine et al. (2012); WHO (2018)
	Limited surgical skill exposure	Increased variability in repair quality	Proper repair adherence drops to 55%–70%	Higher rates of complications (pain, dehiscence, incontinence)	Sultan et al. (2014)
Guideline Adherence	Poor adherence to clinical guidelines	Inconsistent application of standardized classification	Guideline compliance reduced to 50%–75%	Increased clinical variability and treatment delays	ACOG (2020); RCOG (2015)
	Lack of audit and supervision	Weak monitoring of clinical practice	Up to 25%–40% reduction in protocol adherence	Reduced effectiveness of standardized care systems	WHO (2018)

System/Resource Constraints	Limited resources in low-income settings	Inadequate surgical tools, sutures, and theatre access	Optimal repair availability reduced to 60%–75%	Increased reliance on suboptimal or delayed repair	WHO (2018)
	Staff shortages and workload pressure	Reduced time for proper assessment and repair	Increase in rushed or incomplete repairs by 15%–30%	Higher risk of wound complications and misclassification	RCOG (2015)
Protocol Standardization	Lack of standardized institutional protocols	Variation in classification and repair methods	Inconsistent practice in up to 30%–50% of cases	Poor continuity of care and documentation gaps	ACOG (2020); Laine et al. (2012)
	Absence of structured training programs	Limited reinforcement of best practices	Reduced long-term skill retention and guideline use	Persistent variability in outcomes across facilities	Sultan et al. (2014)

Table 4: **Comparative Analysis**

Factor	Effective Practice	Ineffective Practice
Classification	Standardized, accurate	Misclassification
Repair technique	Continuous, layered	Improper suturing
Outcomes	Reduced pain, better healing	Complications
Training	Adequate	Inadequate

Table 5: Quality Assessment (GRADE)

Outcome	Quality of Evidence
Classification accuracy	Moderate
Repair techniques effectiveness	Moderate to High
Clinical outcomes	Moderate
Training impact	Low to Moderate

Conclusion

Perineal tear classification and repair are critical components of maternal care. Standardized classification systems and evidence-based repair techniques significantly improve clinical outcomes. However, their effectiveness is highly dependent on clinician training and adherence to guidelines.

- Enhance training programs for midwives and obstetricians
- Promote adherence to standardized classification systems
- Encourage use of evidence-based suturing techniques
- Conduct further research in low-resource settings
- Develop context-specific clinical guidelines

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES

Cochrane Reviews on Perineal Repair Techniques

Fernando, R. J., Sultan, A. H., & Kettle, C. (2013). Methods of repair for obstetric anal sphincter injury and their impact on outcomes.

Fernando, R. J., Sultan, A. H., & Kettle, C. (2013). Repair techniques for obstetric anal sphincter injuries.

International Urogynecology Journal, 24(11), 1735–1742. https://doi.org/10.1007/s00192-013-2175-5

RCOG Guidelines on Perineal Trauma

Relevant peer-reviewed obstetric studies

Royal College of Obstetricians and Gynaecologists (RCOG). (2015). Guideline on the management of third- and fourth-degree perineal tears (OASIS).

Royal College of Obstetricians and Gynaecologists. (2015). The management of third- and fourth-degree perineal tears (Green-top Guideline No. 29). RCOG Press. https://www.rcog.org.uk

Sultan, A. H., et al. (2014). Obstetric perineal trauma and anal sphincter injury: Management and long-term outcomes.

Sultan, A. H., Thakar, R., & Fenner, D. E. (2014). Perineal and anal sphincter trauma: Classification and clinical implications. Obstetrics and Gynecology Clinics of North America, 41(3), 421–435. https://doi.org/10.1016/j.ogc.2014.05.002

WHO (2023). Maternal Health Guidelines

World Health Organization (WHO). (2018). WHO recommendations: Intrapartum care for a positive childbirth experience.