

Search and evidence audit for the Wayuu review

Search, source-verification, evidence, and proposition-audit supplement

Anthropometric standardization, structural inequity and diagnostic justice in Wayuu children: a critical integrative review and equity-oriented framework

1. Purpose and transparency statement

This supplement documents the critical integrative review and the new search update completed on 14 September 2026. The update adds eight empirical sources and two associated bibliographic records. Exact database queries, counts, source-access levels, and inferential limits are reported here. Additional file 2 preserves bibliographic exports, deduplication memberships, source-level screening decisions, and retrieval logs.

2. Review question

What does the verified evidence permit us to conclude about anthropometric classification, body composition, structural inequity, and potential diagnostic harm in Wayuu children?

3. Documented update: sources, execution date, and counts

Supplementary Table S1. Search execution on 14 September 2026

Source / query	Execution	Records	Purpose / scope
PubMed P01	14 Sep 2026	87	Broad Wayuu/Guajiro query; no lower date restriction.
PubMed P02	14 Sep 2026	42	La Guajira and child/nutrition/growth determinants.
Europe PMC E01	14 Sep 2026	180	Wayuu/Guajiro/La Guajira title and abstract query.
Database total	14 Sep 2026	309 / 207 unique	102 duplicate appearances removed; complete returned bibliographic sets retained.
Regional/repository web discovery	14 Sep 2026	55 logged hits	Eight searches plus targeted follow-up retrieval; three new empirical sources.

The three database queries returned 309 source-query records. After removal of 102 repeated appearances, 207 unique records were screened: seven empirical reports were retained (two existing and five new), two associated records were linked to a parent study, and 198 were not carried forward. Three additional empirical sources were identified by targeted regional/repository discovery. Web hits are discovery leads and are not added to database selection counts.

Chronology. The September search supersedes the inconsistent January cutoff statements. July access dates in existing references describe previous consultations. The new protocol was timestamped before database execution on 14 September 2026; it was not externally registered. New records and decisions document this update independently of the unreconstructed historical sessions. The update searched the full date range, so inclusion did not depend on knowing whether a record had been available in January.

4. Exact executed database queries and supplementary discovery

P01 — PubMed / NCBI E-utilities — 87 records

(Wayuu[All Fields] OR Wayúu[All Fields] OR Wayuú[All Fields] OR Wayu[Title/Abstract] OR Guajiro[Title/Abstract]) AND ("1800/01/01"[Date - Publication] : "2026/09/14"[Date - Publication])

P02 — PubMed / NCBI E-utilities — 42 records

(Guajira[Title/Abstract]) AND (child*[Title/Abstract] OR infant*[Title/Abstract] OR preschool*[Title/Abstract] OR nutrition*[Title/Abstract] OR malnutrition[Title/Abstract] OR growth[Title/Abstract] OR anthropometr*[Title/Abstract] OR stunting[Title/Abstract] OR water[Title/Abstract] OR mortality[Title/Abstract]) AND ("1800/01/01"[Date - Publication] : "2026/09/14"[Date - Publication])

E01 — Europe PMC REST API — 180 records

(TITLE_ABS:Wayuu OR TITLE_ABS:Wayúu OR TITLE_ABS:Wayuú OR TITLE_ABS:Guajiro OR TITLE_ABS:"La Guajira") AND FIRST_PDATE:[1800-01-01 TO 2026-09-14]

Supplementary discovery — regional journals and repositories

Eight targeted web searches generated 55 logged discovery hits. Exact queries, URLs, and disposition are retained in Additional file 2. Follow-up title/author and source retrieval identified Aguirre-Acevedo et al. [38], Rangel Caballero and Iguarán Kohen [43], and Niño Machado [47]. These searches used public web indexing; they were not native exhaustive SciELO or Redalyc database searches.

Selection, source access, and deduplication

A single AI-assisted assessment screened titles and available abstracts, followed by targeted source retrieval and extraction. No independent duplicate human screening was performed. PMID, normalized DOI, and normalized title guided deduplication; source-query memberships were retained. Existing normative/comparative sources were retained as the original conceptual corpus, not counted as new empirical search inclusions. Full texts were examined for [38,39,43,44,46] and relevant sections of thesis [47]. New reports [40,45] were extracted at indexed-abstract level; associated letter [41] and corrigendum [42] were retained at bibliographic level only. Regional leads whose study details could not be established from accessible primary material were logged as unresolved, including the University of La Guajira book on child body composition and the article on the Venezuelan/Wayuu food crisis; no numerical claims were extracted from them.

5. Eligibility and evidence-layer rules

Supplementary Table S2. Eligibility framework

Domain	Include	Exclude	Role in synthesis
Direct quantitative Wayuu	Wayuu child growth, nutrition, anthropometry, body composition, or follow-up relevant to the Colombian child-health context.	Adult-only or no Wayuu-specific data.	Population-specific burden and measurement evidence.
Direct qualitative/contextual Wayuu	Community knowledge, service access, food/water pathways, child nutrition.	No relevance to child growth or diagnostic context.	Mechanisms, acceptability, lived experience, and structural context.
Indirect contextual or comparative	Wayuu populations outside the target country or age	Used as direct evidence for prevalence,	Context and hypothesis

	group, or growth, body composition, or classification in other populations.	phenotype, or classification accuracy in Colombian Wayuu children under five.	generation; no numerical weighting and no pooling with direct target-population evidence.
Methodological/normative	WHO standards, diagnostic equity, JBI, SWiM, PRISMA, CONSIDER, CARE.	Treated as empirical Wayuu data.	Definitions, reporting, appraisal, governance, and policy interpretation.
Bibliographic integrity	Title, authors, outlet, year, and DOI/URL verified.	DOI mismatch, duplicate DOI, unlocatable title, placeholder study.	Retained only after source-identity verification.

Note. Comparative and normative sources cannot increase the apparent amount of direct Wayuu evidence.

6. Verification and extraction rules

- Verify title, author list, year, journal or institution, and DOI/stable URL against a primary source.
- Record population, age, location, design, sample size, anthropometric methods, standard, outcomes, and main findings.
- Record what each source can support and what it cannot support.
- Appraisal used design-specific questions without a summed score or formal certainty grade. Source-access limits are part of appraisal; an abstract-only record does not permit full-text methodological verification.
- Use CONSIDER and CARE as reporting/governance lenses, not as a validated diagnostic-bias scale.
- Classify propositions as directly supported, supported with limitations, plausible but indirect, or unsupported/insufficient.
- Do not estimate false positives without an independent reference standard or outcome.

7. Verified evidence matrix

Supplementary Table S3. Detailed evidence matrix

Source	Population/design	Core result	Permissible inference	Critical limitation
Russell et al. 2020 [11]	Children 6 months-5 years; 172 Wayuu communities; cross-sectional.	Moderate/severe malnutrition, stunting, and underweight were highly prevalent; weaker perinatal service contact was associated with worse status.	Severe nutritional inequity and service-access concerns.	No independent reference standard, body composition, or causal design.
Barrera-López et al. 2026 [12]	398 children, 27 communities; cross-sectional baseline; exploratory 8-month follow-up in 24.	92.46% had at least one nutritional alteration; stunting 60.1%; exploratory anthropometric changes in 24 children.	Chronic growth impairment and continuity-of-care need.	Follow-up data for 6.03% of the initial sample; cannot establish population-wide change or reasons for incomplete follow-up.
López-Ríos et al. 2021 [13]	Three communities; 21 interviews, 3 forums, photovoice with 12.	Historical, complex malnutrition linked to food access, maternal-child nutrition, external practices, and power.	Community knowledge and structural mechanisms are essential to interpretation.	No prevalence or physiological mechanism; situated transferability.
Contreras et al. 2020 [14]	Municipal ecological data plus fieldwork during drought.	Mortality associated with multiple socioeconomic and infrastructure indicators; no simple water-source correlation.	Drought acts through a network of vulnerability.	Ecological fallacy; no individual-level causality.
García Peña and Pimienta 2026 [15]	Qualitative social phenomenology.	Multidimensional development conditions, inequality, water, food sovereignty, and participation.	Policy must be integrated and participatory.	No classification or adaptation test.
Villalobos-Colina et al. 2012 [33]	Venezuelan Wayuu schoolchildren; nutritional/dietary assessment.	Reports nutritional and dietary problems in Venezuelan Wayuu school-aged children.	Historical and transnational context only; narrative contextual role without numerical weight.	Different country, age group, period, and methods. Not used for Colombian under-five prevalence, diagnostic accuracy, a Wayuu phenotype, or growth-curve recommendations.
Bruneau-Chávez et al. 2015 [32]	122 Mapuche and 146 non-Mapuche schoolchildren aged 10-13.	Body-composition and somatotype differences between groups.	Direct Wayuu body-composition research is plausible and warranted.	Cannot be extrapolated to Wayuu preschool children.

de Wilde et al. 2020 [31]	Children of South Asian and Dutch descent; classification comparison.	Ethnic-specific versus WHO criteria can classify differently.	Misclassification should be empirically tested.	Not Wayuu; discordance is not proof of better clinical prediction.
WHO / Finaret and Taylor-Forde [1,2,23]	Multicentre standards and methodological equity analysis.	Common standards support comparability; local curves may normalize deprivation.	Retain WHO screening while validating interpretation and outcomes.	Does not remove need for local service and measurement evaluation.
Aguirre-Acevedo et al. 2026 [38]	538 participants, ages 2–17; somatic, craniofacial, and oral assessment.	Reported growth deficits and oral-health problems in the mixed-age sample.	Additional mixed-age growth evidence.	Mixed nationalities; internal reporting inconsistencies; no clean Colombian under-five estimate. Access: Full text.
Valencia et al. 2025 [39]	269 malnourished children under two; 99 La Guajira records; mixed-methods care study.	Care interviews identified food, transport, and continuity-of-care barriers.	Barriers in nutritional recovery services.	Selected patients, mixed ethnicity/regions; no population prevalence. Access: Full text.
Lennon et al. 2019 [40]; linked records [41,42]	Clinical weight-for-age comparison, ages 2 months–17 years.	Reported weight-for-age patterns similar to a United States comparator in a selected clinical sample.	Heterogeneity of findings across sampling frames.	Abstract-level extraction; letter/correction metadata only; not representative or diagnostic validation. Access: Indexed abstract; associated records metadata only.
Rangel Caballero and Iguarán Kohen 2020 [43]	93 Wayuu students, ages 15–19; BMI, waist, bioimpedance.	Measured BMI, waist circumference, and bioimpedance-estimated body fat in adolescents.	Body-composition measurements exist in adolescents.	Convenience sample; no reference-method validation in young children. Access: Full text.
Patiño-Londoño et al. 2016 [44]	24 qualitative interviews in a Wayuu HIV-service project.	Interviews identified language, worldview, and culturally unsuitable information as access barriers.	Language and culturally mediated access barriers.	Different clinical setting; no anthropometric accuracy or intervention effect. Access: Full text.
Hinds et al. 2025 [45]	Survey of 2,113 Wayuu service recipients.	Indigenous-led insurance was associated with greater service use.	Association of Indigenous-led insurance with service use.	Indexed abstract; observational and not child-nutrition-specific. Access: Indexed abstract.
Agudelo-Hernández and Guapacha-Montoya 2025 [46]	Food insecurity and environmental distress in Wayuu and Embera communities.	Examined food insecurity and environmental distress in Wayuu and Embera communities.	Territorial and food-security context.	No causal child-growth pathway or anthropometric validation. Access: Full text.

Niño Machado 2018 [47]	Doctoral thesis; observations and interviews across six Caribbean facilities.	Observed how language, transport, equipment, and interpretation shape growth assessment in practice.	Situated implementation of growth assessment, including Wayuu encounters.	Grey literature; mixed sites; no quantified misclassification or attributable harm. Access: Thesis methods and relevant fieldwork sections.
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Reference numbers correspond to the main manuscript. Mixed ages, nationalities, regions, and service settings are not collapsed into a single Colombian under-five population. A letter, corrigendum, conference abstract, or preprint version is not counted as a new independent sample.

8. Proposition audit

Supplementary Table S4. Full inferential audit

Claim	Evidence relation	Decision for manuscript	Research requirement
Wayuu nutritional burden is severe.	Directly supported.	Retain with study-specific limitations.	Improve representativeness and longitudinal follow-up.
WHO standards systematically overdiagnose Wayuu children.	No direct accuracy study.	Do not claim; frame as a testable question.	Outcome-linked diagnostic-accuracy and utility studies.
Wayuu children have mesomorphic robustness.	Adolescent bioimpedance evidence exists [43]; no established benign under-five phenotype or independent outcome-linked diagnostic validation follows from it.	Remove as a result.	Age-appropriate reference body-composition study.
Short stature is water-saving adaptation.	No direct physiological evidence.	Remove adaptive causal wording.	Individual-level exposure and physiological pathway studies.
Sarcopenic obesity is present.	No direct measurement.	Remove as a population finding.	Validated body-composition and functional measures.
Diagnostic harm can occur through interpretation and decisions.	Qualitative observation of growth assessment and contextual barriers; attributable consequences remain under-studied [47].	Retain as an operational framework, not prevalence claim.	Mixed-methods process and outcome study.
Wayuu-specific curves should replace WHO.	The reviewed evidence does not currently justify immediate development or clinical adoption; local descriptive curves could normalize deprivation.	Use cautious wording; do not rule out future research on alternative tools.	Prospective outcome-linked validation and assessment of clinical utility and equity under Wayuu governance.

The seven-component framework improves clinical decisions or health equity.	Not empirically established; preliminary, non-validated conceptual synthesis.	Present explicitly as a conceptual framework, not a clinical guideline or validated instrument.	Wayuu-led co-design, feasibility and acceptability assessment, and prospective evaluation of decisions, benefits, harms, and equity outcomes.
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Note. The audit is a transparent logical calibration, not a formal GRADE table.

9. Bibliographic integrity actions

Supplementary Table S5. Examples of corrected bibliographic problems

Problem type	Risk to the review	Action
DOI resolved to a different article.	False evidence attribution and potential integrity concern.	Reference removed unless identity could be confirmed in a primary source.
Same DOI assigned to two different titles.	At least one citation necessarily incorrect.	Duplicate assignment removed and correct record retained only after verification.
Book cited as journal article.	Distorts source type and traceability.	Corrected to the actual publication type or removed if not used.
Placeholder rows such as “additional studies”.	Prevents audit of the included evidence.	Removed; every retained empirical source is individually identified.
Unvalidated score presented as risk-of-bias instrument.	Creates unsupported numerical certainty.	Replaced by design-specific appraisal and non-scored Indigenous governance lenses.

Note. These actions describe the earlier bibliographic reconstruction. The current highlighted manuscript identifies wording revised in response to the editor and Reviewer 1; it is not a complete deletion history of all earlier drafts.

10. Reporting crosswalk

Supplementary Table S6. Review reporting crosswalk

Reporting expectation	Where addressed
Clear review question and critical contribution	Main manuscript: Background, final paragraph.
Documented update, exact queries, exports, and selection	Main Methods; Supplement sections 3–4; Additional file 2.
Eligibility and evidence layers	Main manuscript: Methods; Supplement section 5.
Source verification and extraction	Main manuscript: Methods; Supplement sections 6–7.
Separate results and discussion	Main manuscript: Results and Discussion.
Limit speculation and calibrate claims	Table 3; Supplement section 8.
Data/material availability	Declarations; this Additional file.
Indigenous engagement and limitations	Methods, Discussion, and CONSIDER/CARE framing.
English abstract plus optional Spanish abstract	Main manuscript.
Required Declarations headings	Main manuscript: Declarations.

Note. This crosswalk supports editorial assessment but does not claim PRISMA compliance.

11. Version-control note

Version dated 14 September 2026. This revision replaces the unsupported historical cutoff with a newly executed and documented search, expands the evidence matrix, incorporates eight empirical sources and two associated records, and corrects the overly broad absence claim about body-composition research. It retains a contextual role for reference 33, prudent language on growth curves, and the explicitly preliminary/non-validated status of the seven-component framework. The new register supplies the present audit trail; historical dates have not been retroactively reconstructed.