Brief Original

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A systematic review and meta-analysis of autism spectrum disorder prevalence in Latin America and the Caribbean

Revisión sistemática y metaanálisis de la prevalencia del trastorno del espectro autista en Latinoamérica y el Caribe

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ABSTRACT

Objectives: To synthesize autism spectrum disorder prevalence estimates in Latin America and the Caribbean. **Methods:** We reviewed population-based studies using standardized diagnoses from nine databases, including MEDLINE and Embase, without language restrictions, updated on 16 September 2026. We used Joanna Briggs Institute appraisal, random-effects meta-analysis and adapted GRADE. **Results:** Five studies of childhood autism spectrum disorder in Latin America and the Caribbean (population denominator: 10,312,741) yielded a pooled prevalence of 2.35 per 1,000 (95% confidence interval [CI]: 1.24-3.81; I^2 = 95%). Certainty was very low. No included study provided adult- or rural-specific estimates. **Conclusions:** The childhood prevalence estimate for Latin America and the Caribbean is very uncertain. Ascertainment limitations and geographic gaps restrict its applicability to regional service planning.

Keywords: Autism Spectrum Disorder; Prevalence; Latin America; Caribbean Region; Systematic Review (source: MeSH NLM).

RESUMEN

Objetivos: Sintetizar estimaciones de prevalencia del trastorno del espectro autista en Latinoamérica y el Caribe. **Materiales y métodos:** Revisamos estudios poblacionales con diagnósticos estandarizados en nueve bases, incluidas MEDLINE y Embase, sin restricción de idioma, actualizadas el 16 de septiembre de 2026. Aplicamos la evaluación del Instituto Joanna Briggs, metaanálisis de efectos aleatorios y GRADE adaptado. **Resultados:** Cinco estudios sobre autismo infantil en Latinoamérica y el Caribe (denominador poblacional de 10 312 741) arrojaron una prevalencia combinada de 2,35 por 1000 (intervalo de confianza [IC] 95%: 1,24-3,81; I^2 = 95%). La certeza fue muy baja. Ningún estudio incluido aportó estimaciones para adultos o específicas de poblaciones rurales. **Conclusión:** La estimación de prevalencia infantil regional es muy incierta. Las limitaciones de identificación de casos y cobertura geográfica restringen su aplicabilidad para planificar servicios.

Palabras clave: Trastorno del Espectro Autista; Prevalencia; América Latina; Región del Caribe; Revisión Sistemática (fuente: DeCS Bireme).

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INTRODUCTION

Autism spectrum disorder (ASD) is a neurodevelopmental condition defined by persistent differences in social communication and interaction, together with restricted, repetitive patterns of behaviour, interests or activities [1]. Features emerge in early childhood, although diagnosis may occur later, and ASD persists into adulthood [1]. Global reviews report a median prevalence of 100 per 10,000 and a pooled prevalence of 0.72%, with estimates varying by age and a median male-to-female ratio of 4.2 [2,3]. Prevalence estimates inform the planning of diagnostic, educational and support services.

Latin America and the Caribbean (LAC) are poorly represented in these global syntheses [2,3]. In the region, caregivers report delayed diagnosis, limited access to services and perceived stigma [4,5], and evidence for adults and rural populations is especially scarce [4]. Most regional prevalence studies also predate DSM-5, so they reported historical categories such as Asperger syndrome separately, which affects how recorded counts compare across studies. Sex differences in recognition may be larger where diagnostic services are limited.

We therefore systematically reviewed population-based studies to estimate ASD prevalence in LAC (primary objective). Secondary objectives were to estimate sex-specific prevalence and the prevalence of historical Asperger syndrome diagnoses.

METHODS

Protocol and reporting

This systematic review followed Joanna Briggs Institute (JBI) guidance for prevalence reviews and was reported according to PRISMA 2020 and the Meta-analyses Of Observational Studies in Epidemiology (MOOSE) guideline [6-8]; completed checklists are provided in Supplementary Tables S1 and S2. The protocol was registered in PROSPERO (CRD42023425738). Deviations from the protocol are listed in Supplementary Table S3.

Search strategy

We searched MEDLINE via PubMed, Embase, CINAHL, PsycINFO, SciELO, LILACS, Scopus, Web of Science and ProQuest Dissertations & Theses from inception to 15 May 2023, without date or language restrictions. The strategy was developed for MEDLINE, combining terms for ASD, prevalence or epidemiological designs and LAC based on a published regional strategy that names 28 countries and territories plus regional terms such as Caribbean, West Indies and Antilles [9], and was adapted to each database; SciELO was searched with Spanish terms. The strategy was peer reviewed with the Peer Review of Electronic Search Strategies (PRESS) guideline [10]. Searches were updated on 16 September 2026 with the same strategies for records added from 15 May 2023 onwards. We also checked reference lists of eligible studies and previous global reviews [2,3,11]. After screening, a Peruvian psychiatrist with clinical expertise in ASD reviewed the list of included studies to identify additional studies; no further studies were identified. Google Scholar and national research registries were not searched. Full strategies are in Supplementary Table S4.

Eligibility criteria

We included observational studies (cross-sectional, cohort or surveillance) that estimated ASD prevalence in a general population of any age in LAC, applied standardized Diagnostic and Statistical Manual of Mental Disorders criteria (DSM-III, DSM-IV-TR or DSM-5) or International Classification of Diseases criteria (ICD-9 or ICD-10), and reported case counts and population denominators. No publication type was excluded *a priori*. We excluded studies whose samples did not represent the general population, including studies restricted to clinic attendees, and studies of ASD prevalence within a population defined by another specific condition (e.g., epilepsy or a genetic syndrome). General-population studies were eligible regardless of co-occurring conditions among cases, such as intellectual disability. For multinational studies, only separately reported LAC data were eligible. Historical diagnostic categories (infantile autism, autistic disorder or childhood autism, Asperger syndrome, and pervasive developmental disorder not otherwise specified or atypical autism) were counted within ASD as defined in each study. Definitions and codes are given in Supplementary Table S5.

Study selection and data extraction

After deduplication using the Systematic Review Accelerator, two reviewers (JFC and JGA) independently screened titles and abstracts and assessed potentially eligible full texts in Rayyan [12], a web application that supports blinded, independent screening and flags conflicts. A third reviewer (HSR) resolved disagreements. Excluded full texts are listed with reasons in Supplementary Table S6. The update identified a later report from the same Colombian national registry; we retained the original report to avoid counting the same population twice.

Three reviewers (JFC, JGA and NPB) independently extracted data using a form piloted before extraction; the number of pilot studies and any resulting revisions were not documented. We extracted publication details: study

methods (design, setting, geographic coverage, sampling and case ascertainment); population characteristics (age and sex); diagnostic ascertainment (classification, version and subcategories); and outcome data (cases, denominators, cases by sex, Asperger syndrome cases and co-occurring intellectual disability). Counts were extracted directly when reported; when only percentages were reported, reviewers derived counts, and these values are marked in Table 1. Analyses of adults older than 18 years and rural populations were added *post hoc*.

Risk of bias

Two reviewers (JFC and JGA) independently assessed risk of bias using the nine-item JBI checklist for prevalence studies [6] and resolved disagreements by consensus. Studies with 7-9 items rated "yes" were judged at low risk, 4-6 at moderate risk and 0-3 at high risk of bias (Supplementary Table S7).

Data synthesis

We used a random-effects model because true prevalence was expected to vary across countries, ages, diagnostic classifications and case-ascertainment methods, and estimated between-study variance with restricted maximum likelihood. Proportions were transformed with the Freeman-Tukey double-arcsine method, as prespecified, to stabilise their variance near zero [13]; back-transformation is approximate when sample sizes vary widely. Prevalence was expressed per 1,000 people with 95% confidence intervals (CIs), and heterogeneity was described with I^2 and T^2.

Subgroup analyses examined sex (prespecified) and national versus subnational coverage (exploratory, derived from the planned setting subgroup). Case-identification method (records versus active case finding) and historical Asperger syndrome were analysed *post hoc*; the Asperger analysis included only studies reporting it as a separate category. In sensitivity analyses, we replaced the crude Mexican count with the published weighted estimate, converted to an effective sample size from its CI, and excluded the Mexican study. Publication bias was not assessed statistically because fewer than ten studies were included [14]; the risk of missed studies was considered qualitatively. Analyses used the meta package (version 8.5.0) in R (version 4.6.0).

Certainty of evidence

Certainty was assessed using an adaptation of Grading of Recommendations, Assessment, Development and Evaluation (GRADE), informed by guidance for prognostic evidence [15]. We examined risk of bias, inconsistency, indirectness and imprecision. Heterogeneity was considered expected and did not trigger downgrading.

Ethical aspects

The review used only aggregate published data; no individual-level participant data were collected.

RESULTS

Study selection and characteristics

The original search identified 2,298 database records and four additional records from previous reviews. After removing 1,251 duplicates, 1,051 records were screened; 48 reports were assessed in full text and five studies were included (Figure 1). Reasons for the 43 exclusions are given in Supplementary Table S6. The search update identified no additional eligible study population.

The five studies were conducted in Ecuador, Mexico, Colombia, Venezuela and Aruba [16-20] (Table 1). Two had national coverage (Colombia and Aruba) and three were subnational (Quito, León and Maracaibo). Denominators were a national count of children younger than 14 years in Colombia (n = 9,981,158), a census-based child population in Maracaibo (n = 254,905), a school population in Quito (n = 51,453), a national birth cohort in Aruba (n = 13,109) and a school-based target population of 8-year-olds in León (n = 12,116). None was a sample in which every child

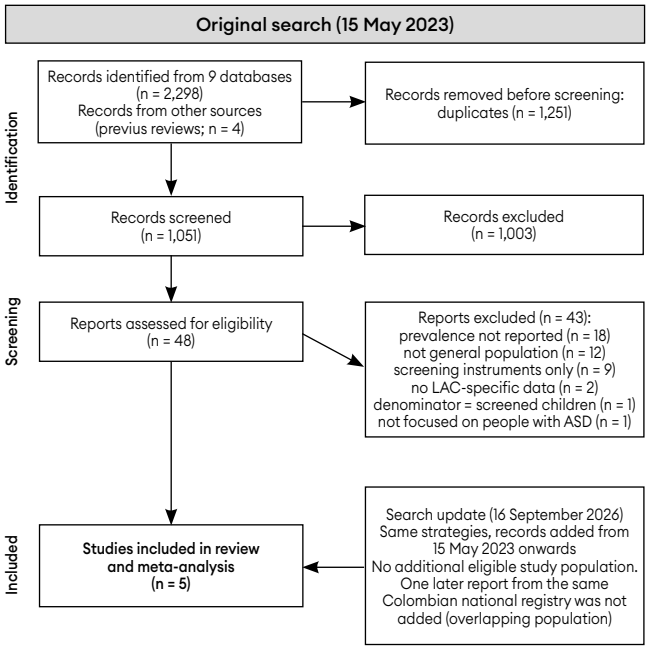

Figure 1. PRISMA 2020 flow diagram of study selection. LAC: Latin America and the Caribbean; ASD: autism spectrum disorder.

Table 1. Characteristics of the included studies

Study (year) [ref]	Country, setting (coverage)	Age (years)[a]	Denominator (type)	Cases (M:F)[b]	Prevalence per 1,000 (95% CI)	Classificationc	Case ascertainment	Co-occurring ID[c]	Risk of bias (JBI)
Dekkers *et al.* (2015) [16]	Ecuador, Quito (subnational)	5-15	51,453 (school population, 2010)	57 (4.7:1)	1.11 (0.84-1.44)	DSM-III or DSM-IV	Previous diagnoses reported by school heads	NR	Moderate (6/9)
Fombonne *et al.* (2016) [17]	Mexico, León (subnational)	8	12,116 (school-based target population)	36 (4.1:1)[d]	2.97 (2.08-4.11)[e]	DSM-IV-TR	Two-phase screening and assessment; special-education and medical records	≈33%	Moderate (5/9)
García-Zambrano *et al.* (2022) [18]	Colombia (national)	1-14	9,981,158 (national count, 2019)	18,695 (1.8:1)[f]	1.87 (1.85-1.90)	ICD-10	Government health-service registry	Not extracted	Low (7/9)
Montiel-Nava *et al.* (2008) [19]	Venezuela, Maracaibo (subnational)	3-9	254,905 (census-based child population)	430 (3.3:1)	1.69 (1.53-1.85)	DSM-IV-TR	Health and educational service records	Not extracted	Moderate (4/9)
van Balkom *et al.* (2009) [20]	Aruba (national)	4-13	13,109 (birth cohort 1990-1999)	69 (6.7:1)[d]	5.26 (4.10-6.66)	DSM-IV (record-review algorithm)	Child and adolescent psychiatry clinic records	29/69 (42%)	Low (7/9)

ASD: autism spectrum disorder; CI: confidence interval; DSM: Diagnostic and Statistical Manual of Mental Disorders; ICD: International Classification of Diseases; ID: intellectual disability; JBI: Joanna Briggs Institute; M:F: male-to-female ratio; NR: not reported by the study; Not extracted: not collected in the original data extraction. Denominators represent the underlying populations used to estimate prevalence, not individually examined participants. [a] Age range of the denominator population; León assessed a single age. [b] Ratio among ASD cases. [c] Among ASD cases, as defined in each study. [d] Derived by the reviewers from reported percentages (80.6% and 87.0% male). [e] Crude ratio of confirmed cases to the target population; the published weighted estimate was 8.7 per 1,000 (95% CI: 6.2-11.0). [f] Sex-specific counts sum to 18,663; 32 cases had no recorded sex. Risk of bias: number of JBI items rated "yes" (7-9: low, 4-6: moderate, 0-3: high).

was assessed. All studies concerned children aged 1-15 years. Four identified cases mainly from existing school, health-service or clinical records [16,18-20]; the Mexican study used two-phase screening and assessment alongside special-education and medical records [17]. Studies used DSM-III, DSM-IV-TR or ICD-10 criteria, and male-to-female ratios among cases ranged from 1.8:1 to 6.7:1. No included study provided an adult estimate or a separate rural-population estimate.

Risk of bias

Two studies were at low risk of bias [18,20] and three at moderate risk [16,17,19] (Table 1; Supplementary Table S7). No study measured the condition in a standardised way for all participants (JBI item 7); three had concerns about participant recruitment (item 2), and two each had concerns about diagnostic validity (item 6) and coverage of the target population (item 5). Record-based identification captures only previously diagnosed children and therefore probably biases estimates downwards.

Prevalence

The meta-analysis yielded 2.35 recorded ASD cases per 1,000 children (95% CI: 1.24-3.81), with substantial heterogeneity (I^2 = 95%; T^2 = 0.0002; Figure 2). Study-level prevalence ranged from 1.11 to 5.26 per 1,000. Using the published weighted Mexican estimate increased the pooled prevalence to 3.15 per 1,000 (95% CI: 1.16-6.09), and excluding the Mexican study gave 2.23 (95% CI: 0.94-4.05).

Sex-specific prevalence, each based on two studies [18,19], was 2.18 per 1,000 males (95% CI: 1.58-2.87) and 1.29 per 1,000 females (95% CI: 0.46-2.53) (Supplementary Figure S1). Historical Asperger syndrome, reported separately in three studies [16,17,20], had a prevalence of 0.26 per 1,000 (95% CI: 0.14-0.42; I^2 = 21%; Supplementary Figure S2); the Venezuelan study was excluded from this analysis because it combined Asperger syndrome with PDD-NOS. Estimates did not differ clearly by case-identification method (p = 0.430; Supplementary Figure S3) or by coverage (national: 3.31 vs. subnational: 1.80 per 1,000; p = 0.340; Supplementary Figure S4), although these comparisons involved one to three studies per group.

Certainty was very low for overall and sex-specific ASD prevalence and low for historical Asperger syndrome (Table 2).

DISCUSSION

This review identified five studies of childhood ASD prevalence in LAC [16-20]. The synthesis produced a low recorded-case estimate with substantial heterogeneity and very low certainty. It should not be interpreted as a reliable estimate of underlying ASD prevalence throughout LAC. The absence of eligible adult or rural-specific estimates further limits its use for planning services across the lifespan and across settings.

Our pooled prevalence of 2.35 per 1,000 is lower than global figures: a median of 100 per 10,000 (range: 1.09-436.0) from 99 estimates published 2012-2021 [2]; 0.6% (95% CI: 0.4-1.0) worldwide and 1.0% (95% CI: 0.8-1.1) for the Americas from studies published 2008-2021 [11]; and 0.72% (95% CI: 0.61-0.85) from studies published 2000-2020 [3]. Four of our five studies fell within at least one of these search periods, but our largest study was published afterwards [18], and each global review pooled a few LAC estimates with studies from other regions. Those reviews also accepted screening-based or actively ascertained estimates and, in one case, grouped the Americas as a single region [11], whereas we required DSM or ICD criteria, a general-population denominator and LAC-specific data.

A lower pooled estimate does not establish that ASD is less common in LAC. Documented differences in the included studies favour underestimation: four relied mainly on previously recognised cases [16,18-20], most used DSM-IV-TR or earlier criteria, and denominators included very young children in whom ASD is often not yet diagnosed. Limited access to diagnostic assessment, reported by caregivers in the region [4,5], may add to this underascertainment,

Table 2. Summary of findings and certainty of evidence for autism spectrum disorder in Latin America and the Caribbean

Analysis	Studies [refs]	Denominator	Prevalence per 1,000 (95% CI)	I^2	T^2	Certainty (GRADE)
Primary synthesis						
Childhood ASD	5 [16-20]	10,312,741	2.35 (1.24-3.81)	95%	0.0002	Very low[abcde]
Pre-specified subgroup analysis						
ASD in males	2 [18,19]	6,557,985	2.18 (1.58-2.87)	96%	<0.0001	Very low[abcde]
ASD in females	2 [18,19]	3,678,078	1.29 (0.46-2.53)	99%	0.0001	Very low[abcde]
Exploratory or post hoc analyses						
National coverage	2 [18,20]	9,994,267	3.31 (0.81-7.49)	98%	0.0004	Not rated
Subnational coverage	3 [16,17,19]	318,474	1.80 (0.93-2.93)	90%	0.0001	Not rated
Historical Asperger syndrome[f]	3 [16,17,20]	76,678	0.26 (0.14-0.42)	21%	<0.0001	Low[abce]
ASD in adults	None	–	No estimate available	–	–	Not rated
ASD in rural populations	None	–	No separate estimate available	–	–	Not rated

ASD: autism spectrum disorder; CI: confidence interval; GRADE: Grading of Recommendations, Assessment, Development and Evaluation. Random-effects model (restricted maximum likelihood) with Freeman-Tukey double-arcsine transformation; T^2 on the transformed scale. Sensitivity analyses of the primary synthesis: weighted Mexican estimate, 3.15 (1.16-6.09); excluding the Mexican study, 2.23 (0.94-4.05). Case-identification subgroups: registries or records, 2.23 (0.94-4.05), four studies; active assessment, 2.97 (2.08-4.11), one study; p = 0.430. [a] Population-based evidence began at high certainty. [b] Downgraded one level for risk of bias. [c] Heterogeneity was considered expected; no downgrade for inconsistency. [d] Downgraded one level for imprecision. [e] Downgraded one level for indirectness because the included studies did not represent the entire region. [f] Includes only studies reporting Asperger syndrome as a separate category; the Venezuelan study [19] reported Asperger syndrome and PDD-NOS combined and was excluded. Absence of an adult or rural-specific estimate should not be interpreted as zero prevalence.

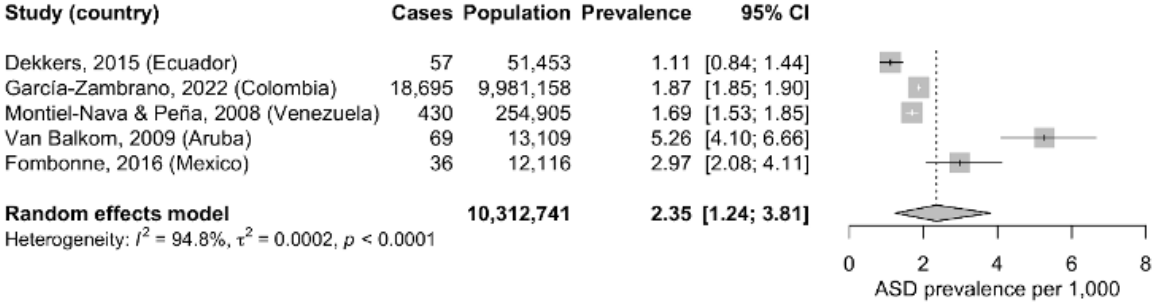

Figure 2. Prevalence of childhood autism spectrum disorder per 1,000 people in Latin America and the Caribbean, by study and country. CI: confidence interval. Random-effects model (restricted maximum likelihood) with Freeman–Tukey double-arcsine transformation; T^2 on the transformed scale.

although its extent cannot be measured from these data. Notably, record-review surveillance produced higher, not lower, estimates in a global analysis dominated by high-income settings [3], which suggests that the coverage of available records, rather than their use per se, determines underascertainment; this remains a hypothesis.

Strengths include protocol registration, searches of regional databases without language restrictions, independent screening and extraction, and structured appraisal. Several limitations affect interpretation. Reliance on previously recognised cases probably underestimates prevalence by an unknown amount. Five countries or territories, three represented by single cities, limit how far the pooled estimate applies to the region. Different age ranges reduce comparability between studies and with global figures. With five studies, between-study variance is imprecisely estimated and heterogeneity could not be explored meaningfully. Because Google Scholar, institutional repositories and national registries were not searched, unpublished surveillance data may have been missed, particularly from countries without included studies. Using the crude Mexican count underestimated prevalence in that study; with the weighted estimate, the pooled prevalence rose to 3.15 per 1,000. Finally, several deviations from the registered protocol are reported transparently.

For clinical and service planning, these findings support caution about treating recorded diagnoses as a complete measure of need. Future prevalence research should report sampling and nonresponse adjustments, use clearly described diagnostic assessments, and include adults and rural populations. The current evidence does not establish a dependable region-wide prevalence of ASD.

Supplementary Material

The supplementary material can be accessed at the following link: https://revistas.cientifica.edu.pe/index.php/mecp/article/view/4191/1934

Author contributions

JAFC: Conceptualization, Data Curation, Investigation, Methodology, Project Administration, Validation, Writing – original draft, Writing – review & editing. JDGA: Conceptualization, Data Curation, Investigation, Methodology, Validation, Writing – original draft, Writing – review & editing. HSR: Conceptualization, Investigation, Validation, Writing – original draft, Writing – review & editing. NPB: Conceptualization, Data Curation, Investigation, Methodology, Writing – original draft, Writing – review & editing. DBVJ: Conceptualization, Investigation, Writing – original draft, Writing – review & editing. ATR: Conceptualization, Methodology, Writing – original draft, Writing – review & editing. All authors approved the final revised manuscript and accept responsibility for its content.

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Conflict of interest statement

No conflicts of interest.

Generative Artificial Intelligence use statement

During the preparation of this version, the authors used OpenAI Codex and Anthropic Claude to support language editing, reference formatting, and quality checks on the reporting of the meta-analyses, including identifying inconsistencies across the text, tables, and figures.

Data availability statement

Data are available from the authors upon reasonable request. Requests may be sent to the corresponding author.

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