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Intersectoral vulnerabilities in secondary school dropouts: A systematic review

Vulnerabilidades intersectoriales en el abandono escolar de educación secundaria: una revisión sistemática

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Abstract

This study examines the socioeconomic, academic, and family factors associated with secondary school dropout, distinguishing between recorded withdrawal and completion, as well as between prediction and intervention indicators. To this end, 30 reports of primary studies (2021–2026) were collected through searches targeting publishers and DOIs, and the findings were classified according to population, design, outcome variable, and three interrelated domains. Although the review followed PRISMA 2020 and PRISMA-S guidelines, the absence of a complete database export, a selection process audit, and a formal risk-of-bias assessment precludes it from being considered a fully reproducible systematic review. Regarding the results, evidence from various regions links dropout to material deprivation, youth employment, low academic performance, grade retention, chronic absenteeism, school disengagement, parental education levels, and household instability. However, cohort studies nuance simplistic explanations; for instance, the relevance of skills and aspirations varies by stage; in one case, self-perceived health showed no independent association after adjustments, and in another, there were no significant correlations at the household level. Furthermore, better predictive performance does not equate to verified prevention. In conclusion, material, academic, and family conditions interact in a context-dependent manner, without supporting a universal causal hierarchy.

Keywords: school dropout, secondary education, academic performance.

Resumen

El presente estudio examina los factores socioeconómicos, académicos y familiares asociados al abandono escolar en secundaria, distinguiendo entre salida registrada y finalización, así como entre predicción e indicadores de intervención. Para ello, se recopilaron 30 informes de estudios primarios (2021–2026) mediante búsquedas dirigidas a editoriales y DOI, y los hallazgos se clasificaron según población, diseño, variable de resultado y tres

dominios interrelacionados. Si bien la revisión siguió las directrices PRISMA 2020 y PRISMA-S, la ausencia de una exportación completa de la base de datos, de una auditoría del proceso de selección y de una evaluación formal del riesgo de sesgo impide considerarla una revisión sistemática plenamente reproducible. En cuanto a los resultados, la evidencia de diversas regiones vincula el abandono con carencias materiales, trabajo juvenil, bajo rendimiento, repetición de curso, absentismo crónico, desconexión escolar, nivel educativo de los padres e inestabilidad del hogar. No obstante, estudios de cohortes matizan explicaciones simplistas, por ejemplo, la relevancia de habilidades y aspiraciones varía según la etapa; en un caso, la autopercepción de salud no mostró asociación independiente tras ajustes, y en otro no hubo correlaciones significativas a nivel del hogar. Además, un mejor rendimiento predictivo no equivale a prevención verificada. En conclusión, las condiciones materiales, académicas y familiares actúan de manera interrelacionada y dependiente del contexto, sin respaldar una jerarquía causal universal.

Palabras clave: abandono escolar, educación secundaria, rendimiento académico.

Introduction

Secondary education functions as an essential bridge between foundational learning and subsequent qualifications, employment opportunities, and social participation. However, it is important to distinguish between attendance, enrollment, completion, and school dropout, as these are different indicators. In fact, UNESCO (2026) estimated that, in 2024, 273 million children and youth were out of school, including 64 million of lower secondary school age and 130 million of upper secondary school age; the estimated on-time completion rates worldwide were 78% and 61%, respectively. Now, these are measures of access and completion at the population level, not individual school dropout incidence rates. Their importance lies, therefore, in the magnitude and distribution of educational exclusion, without suggesting that everyone who does not complete their studies has dropped out of school.

In this context, school dropout refers to leaving before completing a relevant secondary education cycle. It should be noted that recorded exit is distinct from late completion, school transfer, inability to access the next educational level, continued enrollment, intention to drop out, predicted risk, and attendance. In other words, these outcomes respond to different questions and cannot legitimately be grouped into a single dropout rate. For example, while the precision of machine learning measures allows for risk identification, a sustained change in enrollment or graduation is required to demonstrate that an intervention prevented school dropout (Psyridou et al., 2024; Hurtado-Mora et al., 2026; Huang & Hai, 2026).

To better understand this phenomenon, ecological approaches situate young people within a variety of interactive environments: home, education, institutions, and community (Bronfenbrenner, 1987). Likewise, cultural capital theory addresses unequal access to institutional knowledge and educational resources (Bourdieu, 1986), and Finn's (1989) participation-identification approach conceptualizes disengagement as a potentially cumulative school process. These viewpoints are complementary, although they do not imply that a single sequence operates in all contexts. Given that poverty, family conditions, and academic performance are interrelated, observational estimates also depend on how pathways of confounding and mediation are addressed.

First, material disadvantages can hinder school persistence. The costs of schooling, dangerous or prolonged travel, unpaid caregiving, and the potential cost of not working represent significant barriers. In rural areas of Honduras, for example, increasing economic and family pressure is observed during school transitions (Murphy-Graham et al., 2021). Similarly, a comparative study in Oaxaca revealed that job seeking is especially frequent among disadvantaged groups (Álvarez et al., 2021). In India, girls and boys respond differently to financial crises depending on the type of crisis (Biswas & Bhattacharya, 2025). On the other hand, a Japanese policy investigation examined whether reduced private school tuition fees were associated with a lower school dropout rate (Nomoto, 2024). Taken together, these results suggest potentially adjustable constraints, although they are not interchangeable across school financing systems.

Second, learning and school participation play a crucial role. Longitudinal evidence from four countries links greater learning with subsequent continuity in studies (Kaffenberger et al., 2023), while a prospective investigation in India associates assessed learning difficulties with early school dropout (Santhya et al., 2025). Similarly, another analysis examines labor and family characteristics in the same UDAYA cohort; therefore, common individuals should not be considered as two independent replications (Kumar et al., 2023; Santhya et al., 2025). Vietnamese panel research shows stage-dependent patterns: skills were primarily important in lower secondary school and ambitions in upper secondary school (Tran, 2022). A Chilean national cohort, for its part, illustrates attendance trajectories prior to the transition to secondary school (Gazmuri & Siddiqui, 2026).

Nevertheless, school is more than grades. Marked loneliness among peers was associated with an approximately 10 percentage point lower completion rate in a five-year Norwegian study. Teacher support, according to student assessment, was indirectly related to completion through success (Tvedt & Bru, 2023). However, another Norwegian follow-up study indicated that self-rated mental or general health during the first year did not independently predict school dropout after adjustment, although prior grades did (Goll et al., 2024). This discrepancy ultimately underscores why measurements of social isolation, general mental health, and school belonging should not be homogenized into a single universal psychological risk factor.

Third, family resources and connections can influence access to knowledge, learning support, time to study, financial stability, and caregiving responsibilities. Studies conducted in Peru, India, and Norway show associations between parental education and employment and school outcomes (Calero et al., 2023; Kumar et al., 2023; Askeland et al., 2025). In Norwegian studies, parental separation is also associated with school dropout after controlling for various explanatory factors (Karhina et al., 2024). In a South African cohort, no statistically significant adjusted family predictors were found in any of the specifications (George et al., 2026). Consequently, household composition should be analyzed as a context of resources and conditions, rather than as a stigmatizing term.

To date, evidence comes from small case studies, matched comparisons, longitudinal cohorts, national administrative data, prediction algorithms, and policy evaluations. A review that simply reports on determining factors risks conflating qualitative descriptions, adjusted relationships, relevance of algorithmic features, and intervention effects. Accordingly, the present study asks: what socioeconomic, academic, and family circumstances have been associated with school dropout in secondary education, and how do results vary according to design, context, and endpoint? Its objectives are, ultimately, to identify socioeconomic correlations, examine academic correlations, and analyze family correlations, explicitly considering inconsistent findings and limitations of inference.

Methodology

Design and methodological approach

For the development of this research, a systematic review approach with narrative synthesis was employed. The presentation structure was based on PRISMA 2020 and PRISMA-S guidelines (Page et al., 2021; Rethlefsen et al., 2021). An evidence set comprising 30 articles was assembled, which integrated publications relevant to secondary education from the supplied source collection, complemented by targeted searches on publisher websites, DOI identifiers, and bibliographic databases. These 30 publications were presented jointly, not in separate batches.

It should be noted that, although the bibliographic existence and relevance of the articles were verified with varying levels of depth, full-text screening records, specific design evaluations, or reproducible database results were not available for all reports. Consequently, this synthesis was not qualified as a review that fully complied with PRISMA, given that such records were not provided or reconciled.

Eligibility criteria

Eligibility criteria included articles whose topics encompassed secondary education students (initial and upper cycles, high school, or secondary-level vocational training programs), as well as administrative records or school personnel related to such students. The exposure considered in the selected articles comprised socioeconomic, academic, or family characteristics. The comparator consisted of exposed versus unexposed students, different trajectories, or comparison schools, as appropriate; it should be noted that qualitative studies did not require a statistical comparator.

The main outcomes of the included articles were observed dropout before completion or completion/non-completion. Articles reporting retention, failure to enroll at transition, modeled risk, and indirect indicators related to interventions were also incorporated, although coded separately. Eligible designs comprised original quantitative, qualitative, mixed-methods, cohort, administrative, case-control, prediction, or quasi-experimental articles published between 2021 and 2026.

Conversely, articles focused exclusively on university education, those on MOOCs, publications prior to 2021, narrative reviews used as primary evidence, and reports on mixed educational levels lacking specific secondary-level outcomes were excluded. Nevertheless, one descriptive article focused solely on school dropout was retained to provide context, though not for making comparative estimates.

Information sources and search strategies

Source documentation recorded historical searches in Scopus, Web of Science, SciELO, and Dialnet. However, these searches included higher education, so the archived identification totals did not exclusively

represent this secondary education synthesis. Subsequent discovery of relevant articles utilized publisher article pages, DOI links, open academic records, and accessible full texts.

It is important to mention that searches within the subscribed interfaces of Scopus and Web of Science, as well as final exports from ERIC, SciELO, and Dialnet, were not available for independent execution in this work. For this reason, reproducible search strings were specified for a final specific secondary search, which were to be executed and saved word for word, recording interface, date, filters, and raw yields before reporting a complete PRISMA flow.

Selection, extraction, and synthesis

Regarding the selection, extraction, and synthesis process, records were organized into a single evidence matrix describing bibliographic identification, location, participants or units, design, outcome variable, predictor domain, and reported direction or numerical estimate. It should be noted that domain labels were not mutually exclusive (an article could cover multiple domains) and examined factors presenting null adjusted correlation were included. Likewise, no recoding of outcome types was performed to classify them as dropout.

Convergence, divergence, temporal sequence, and model limitations were addressed narratively. On the other hand, no meta-analysis was conducted due to lack of coherence in definitions of populations, exposures, effect scales, comparison structures, and outcome definitions. Specifically, data on incidence rate ratios, percentage point differences, predictive accuracy, or standardized regression coefficients were not combined.

Results

Study characteristics and outcome classification

The evidence map comprises 30 distinct primary publications from Latin America, North America, Europe, Africa, and Asia. The designs include qualitative research, matched case-control analyses, longitudinal cohorts, registry-based regression, machine learning prediction, an aggregated evaluation of enrollment policies, and a quasi-experimental intervention. It should be noted that a study reporting a recorded exit cannot be treated as equivalent to one predicting a risk score.

Below, Table 1 presents the 30 publications jointly and indicates the primary outcome criterion and contribution of each. Specific numerical findings for each study are provided only when they were identifiable in the supplied reports or in the descriptions of verified sources.

Table 1

Characteristics, endpoints, and principal findings of 30 secondary-school publications

Study	Setting/sample	Outcome	Principal finding
Álvarez et al., 2021	Mexico; 960 students/16 schools	Dropout	Economic disadvantage, employment, grades and family conditions varied by locality.
Murphy-Graham et al., 2021	Honduras; 1,305 youths	Dropout trajectory	Work, financial and family pressures accumulated across transitions.
Benítez et al., 2021	Ecuador; 30 pupils	Reasons/risks	43.3% reported low economic status; transport and school/family barriers identified.
Piscitello et al., 2022	USA; 10,000 pupils	Dropout	Achievement mediated sociodemographic association in rural pupils.
Doe et al., 2022	Tanzania; 17 educators	Reported dropout	Poverty, travel, repetition, language demands and parental involvement cited.
Sebobi & Kelepile, 2022	Botswana; 2,201 exits	Recorded dropout	Absence (45.4%) and pregnancy (29.2%) accounted for recorded reasons.
Tran, 2022	Vietnam; Young Lives panel	Stage-specific dropout	Skills mattered earlier, aspirations later; parental aspirations also relevant.
Piña, 2023	Mexico; 103 entrants	Dropout/completion	Economic, school-administrative and familial issues coincided.

Kumar et al., 2023	India; UDAYA cohort	Dropout	Paid work elevated risk; wealth and maternal schooling protective.
Calero et al., 2023	Peru; 11,589 records	Dropout model	Poverty, work and parental histories associated; achievement protective.
Pisinger et al., 2023	Denmark; 62,171	Recorded dropout	Perceived parental alcohol problems associated with higher incidence.
Kaffenberger et al., 2023	Four-country cohorts	Dropout	Higher learning associated with lower leaving probability.
Tvedt & Bru, 2023	Norway; 1,241 pupils	Completion	Peer loneliness and grades predicted completion; support indirect.
Psyridou et al., 2024	Finland; long cohort	Predicted dropout	Academic, motivational and family signals; modest discrimination.
Bulut et al., 2024	USA; 16,137 pupils	Predicted dropout	Grade 9 GPA, socioeconomic status, belonging and climate informative.
Wafubwa et al., 2024	Kenya; 1,798 youths	Retention	Fees, parental job loss, pregnancy, care and work barriers.
Karhina et al., 2024	Norway; 8,323 youths	Dropout	Parental separation association partly explained by resources.
Nomoto, 2024	Japan; prefectural panel	Aggregate dropout	Private tuition support associated with small policy-period reduction.
Goll et al., 2024	Norway; 1,676 entrants	Dropout	Prior grades predictive; baseline self-rated health null after adjustment.
Hashim et al., 2025	Malaysia; >100,000	Recorded dropout/prediction	Income, gender and grades; early identification limited sensitivity.
Dayasiri et al., 2025	Sri Lanka; 75 cases + controls	Recorded dropout	Grades, repetition and parental expectations/literacy associated.
Biswas & Bhattacharya, 2025	India; household panel	Secondary dropout	Different financial shocks associated with girls' and boys' leaving.
Santhya et al., 2025	India; UDAYA (n=9,169)	Early leaving	Measured learning deficits predicted leaving; dataset overlaps Kumar.
Huamán et al., 2025	Peru; 20 leavers	Dropout-only profile	Economic factor rated high in 40%; no relative-risk comparator.
Askeland et al., 2025	Norway; 8,437 youths	Completion	Parental unemployment associated with lower secondary completion.
Mello-Román et al., 2025	Paraguay; 706,785	Predicted dropout	Overage and repetition salient administrative risk features.
George et al., 2026	South Africa; Asenze cohort	Dropout	Planning ability associated; household terms not uniformly significant.
Gazmuri & Siddiqui, 2026	Chile; 248,169 pupils	Non-enrolment	Pre-transition attendance trajectories more informative than grades.
Hurtado-Mora et al., 2026	Mexico; school records	Predicted risk	Accuracy improved; intervention benefit not evaluated.
Huang & Hai, 2026	China; n=435 analyzed	Risk/retention	Risk and absence improved; confirmed retention effect inconclusive.

Socioeconomic correlates

Material hardship appeared in geographically diverse designs but differed in operational meaning. Mexican and Honduran accounts connected youth employment and family economic pressure with withdrawal (Álvarez et al., 2021; Murphy-Graham et al., 2021). In Ecuador, 43.3% of 30 respondents reported low economic circumstances (Benítez et al., 2021), a sample description rather than an effect estimate. In rural Tanzania, teachers identified distance and poverty (Doe et al., 2022). In Sri Lanka, financial constraints were the immediate reason reported by 21 of 75 dropout cases (28%), whereas the matched case–control analysis also identified academic and parental variables (Dayasiri et al., 2025).

Associations were quantified differently elsewhere. A Peruvian model reported estimated probability differences of +2.985 percentage points for very low socioeconomic status and +1.986 points for a need to work (Calero et al., 2023). Wealth and paid work were relevant in the Indian adolescent cohort (Kumar et al., 2023). A separate panel found that marriage expenditures or multiple shocks were particularly associated with girls' withdrawal, whereas illness, accident, or death-related shocks were linked to boys' withdrawal; these are conditional findings rather than a universal sex pattern (Biswas & Bhattacharya, 2025). Kenyan respondents reported fees and parental job loss as post-closure retention barriers (Wafubwa et al., 2024).

Norwegian follow-up found completion of 71.9% among adolescents with an unemployed parent compared with 86.6% when both parents worked (Askeland et al., 2025). A Malaysian administrative study identified income, grades, and sex in a prediction model (Hashim et al., 2025). Japanese policy evaluation linked private high-school tuition support to a small aggregate dropout-rate reduction, illustrating an economic-policy question different from individual household regression (Nomoto, 2024). However, household-level terms were not consistently significant after adjustment in the South African cohort (George et al., 2026). These contrasts imply variation by measurement, education financing, population, and adjustment; the review cannot estimate one general poverty effect.

Academic correlates and temporal processes

Weak grades, repetition, overage, and persistent absences frequently preceded or accompanied leaving. In Sri Lanka, grade repetition was reported by 19 of 75 dropout cases (25.3%) as an immediate reason and also emerged in comparative analysis (Dayasiri et al., 2025). Botswana administrative data attributed 45.4% of recorded exits to unexcused absence, a coded reason rather than a causal probability (Sebobi & Kelepile, 2022). In Peru, better previous performance was linked to a 2.590-percentage-point lower modeled dropout probability (Calero et al., 2023). Across four-country cohorts, a one-standard-deviation higher learning score was associated with approximately 50% lower odds of leaving (Kaffenberger et al., 2023).

Temporal studies add detail beyond cross-sectional lists. Measured learning deficits preceded early departure in a UDAYA longitudinal analysis (Santhya et al., 2025). Vietnam's Young Lives analysis found that cognitive and noncognitive skills and educational aspirations differed in relevance between lower secondary, transition, and upper secondary (Tran, 2022). In Chile, attendance in the years just before entry to high school contributed more predictive information than achievement to subsequent non-enrolment (Gazmuri & Siddiqui, 2026). Paraguay's large administrative dataset highlighted overage and repetition (Mello-Román et al., 2025). These studies support longitudinal attention to changing trajectories, not a claim that every predictor is manipulable or causal.

School connectedness may influence continuation through more than test scores. In Norway, completion was approximately 10 percentage points lower among students with pronounced peer loneliness than those without loneliness; teacher support was indirectly associated with completion through achievement (Tvedt & Bru, 2023). Conversely, after covariate adjustment, baseline self-rated health was not an independent predictor in Goll et al. (2024). Prediction models identified GPA, belonging, and school climate, but discrimination of AUC .61–.65 in one Finnish cohort and high accuracy in a Mexican dataset represent model performance, not demonstrated reductions in leaving (Psyridou et al., 2024; Bulut et al., 2024; Hurtado-Mora et al., 2026).

Family correlates and mixed evidence

Parental education, employment, educational expectations, relationships, and care responsibilities emerged across methods. In Oaxaca, parental educational background corresponded to different schooling trajectories (Álvarez Cedillo et al., 2021); Indian cohort evidence associated maternal schooling with continuation (Kumar et al., 2023). Parents' own prior dropout corresponded to a modeled +4.013-percentage-point probability difference in Peru (Calero et al., 2023). The Sri Lankan matched analysis implicated parental literacy, expectations, and dropout among siblings, while reported parental loss or separation accounted for 11 of 75 cases (14.6%) (Dayasiri et al., 2025).

Register-based studies provided more explicit estimates. Perceived parental alcohol problems were associated with higher dropout incidence in Denmark, with incidence-rate ratios of 1.83 among girls and 1.38 among boys (Pisinger et al., 2023). Parental separation retained an adjusted odds ratio of 1.72 in Norway, with parental education and income explaining part of the contrast (Karhina et al., 2024). Parental unemployment was associated with lower adjusted odds of completion (OR = 0.59; Askeland et al., 2025). These results do not imply that any family structure is inherently deficient: available resources, social support, and model covariates matter. The non-significant adjusted household findings in the South African cohort reinforce this qualification (George et al., 2026).

Numerical evidence and endpoint restrictions

Table 2
Selected study-level estimates: reported metrics and limits

Study	Endpoint	Estimate	Restriction
Calero et al., 2023	Observed/modelled dropout	Low SES +2.985 pp; work +1.986 pp; good grades −2.590 pp; parental dropout +4.013 pp	Marginal contrasts in one Peru model; do not pool with OR.
Tvedt & Bru, 2023	Observed completion	≈10 pp lower in high-loneliness group	Adjusted cohort contrast; does not isolate intervention impact.
Dayasiri et al., 2025	Dropout-case reasons	Financial 28%; repetition 25.3%; parental loss/separation 14.6%	Case percentages, not population risks or case–control ORs.
Pisinger et al., 2023	Observed dropout	IRR 1.83 (girls); 1.38 (boys)	Incidence-rate ratios, not odds ratios.
Karhina et al., 2024	Observed dropout	Adjusted OR 1.72	Observational; residual confounding possible.
Askeland et al., 2025	Completion	71.9% vs 86.6%; adjusted OR 0.59	Different outcome and population than risk scores.
Psyridou et al., 2024	Predicted dropout	AUC .61 (grade 6), .65 (grade 9)	Prediction discrimination, not prevention.
Huang & Hai, 2026	Risk/absences	Risk β −0.37, $p < .001$; absence OR 0.56	Intermediate improvements; retention effect not conclusive.

Note. pp = percentage points; OR = odds ratio; IRR = incidence-rate ratio; AUC = area under the curve. Different endpoint definitions and model scales preclude a pooled estimate

Table 3
Interpretive framework for overlapping domains (not a tested causal model)

Material context	School trajectory	Household context
Income insecurity; work and travel costs	Grades, learning, repetition, absence, belonging	Parental education; employment, support, care duties
May restrict attendance resources	May indicate accumulating disconnection	May buffer or compound material/school barriers

Note. The boxes summarize recurring themes across the 30 publications; arrows or a single universal causal direction are deliberately not asserted

Discussion

The contribution across the 30 publications is convergence with qualifications, not a numerical ordering. The relationships between economic restriction, educational pathways and family resources are overlapping, but the strength and even the presence of an adjusted correlation varies among settings. A study's focus on poverty does not evaluate the extent of the causal impact of poverty that is measured, and a predictor in a machine learning algorithm is not an intervention target solely because it increases model accuracy. Therefore, this study prefers comparisons by time, design, and endpoint as opposed to basic citation frequency.

Economic mechanisms vary in different schooling systems. The interplay of youth work, fees, transportation and parental employment outlined in Mexico, Honduras, Kenya and Peru point to considerations of both school-side and household-side practical constraints (Álvarez Cedillo et al., 2021; Murphy-Graham et al., 2021; Wafubwa et al., 2024; Calero et al., 2023). Indian data on financial shocks suggest that the same decrease of household income might be tied to different gendered duties (Biswas & Bhattacharya, 2025). Japan's tuition-policy study offers a more intervention-oriented comparison, but is a policy-level design whose estimates cannot replace individual-level processes (Nomoto, 2024). In South Africa, null-adjusted household terms do not permit the assertion that the same measured socioeconomic indicator predicts departure everyplace (George et al., 2026).

From an academic perspective, learning deficiencies and frequent absenteeism should be seen as temporally informative indications. Separate UDAYA analyzes link both household/work situations and learning deficiencies to early departure, but as they are based on the same cohort agreement cannot be claimed as totally independent replication (Kumar et al., 2023; Santhya et al., 2025). Tran (2022) points to differences throughout education stages and Gazmuri and Siddiqui (2026) show how longitudinal attendance may be used to identify transition risk. Tvedt and Bru (2023) suggest that peer relations contribute more than achievement. However, Goll et al (2024) indicate that wide initial self-reported health did not predict departure independently after adjustment. Thus, particular school interactions and general health screenings tap separate conceptions; apparent discrepancy should motivate accurate measurement rather than null evidence omission.

The family findings, too, are consistent with a resource-sensitive, non-stigmatizing interpretation. Estimated connections with parental separation, unemployment or alcohol issues may reflect access to income, care, educational assistance or other unmeasured circumstances (Pisinger et al., 2023; Karhina et al., 2024; Askeland et al., 2025). The fact that a certain kind of home exists is not a diagnostic nor a predetermined result for a person. Comparisons with George et al. (2026) emphasize the significance of covariate definition, timing, sample size, and local context.

The implications for practice are in terms of assessment as well as identification. Teachers are able to look at attendance drops, repetition, grades, transit difficulties and families' requested help together, with human evaluation and privacy precautions. If the risk score is high, this should elicit helpful inquiry, not labeling or exclusion. Risk-classification models need calibration and independent external validation and their use should be assessed against observed school departures, transfers, delayed completion and unexpected consequences. Chinese intervention improved proxies of risk and absenteeism, but retention was not different at follow-up (Huang & Hai, 2026).

There are important limits. The 30 papers differ in demographic, outcome definition, adjustment sets, follow-up and availability of complete text; one short research only included kids who had already left school. Uniform choices on full-text eligibility and design-specific risk-of-bias ratings are not presently published. The precise final database search, duplicate and exclusion logs Therefore, certainty grading, reviewer independence, protocol registration, or complete PRISMA identification flow cannot be claimed. Also, two reports use overlapping data from UDAYA which reduces the number of independent cohorts relative to the number of reports.

Conclusions

Secondary school dropout is associated with interrelated economic, academic, and family circumstances, although these are context-dependent. In the 30 publications analyzed, factors such as material deprivation, paid work, learning deficits, grade repetition, absenteeism patterns, sense of school belonging, and parental resources appear recurrently. Nevertheless, adjusted null results and stage-specific associations warn against adopting a universal causal explanation.

The reviewed evidence shows that there is no single causal hierarchy applicable to all contexts. The observed associations vary according to study design, the population examined, and the outcome definition. For example, the relevance of academic skills and educational aspirations differs between lower and upper secondary school, suggesting that interventions should be adapted to the specific educational stage. Likewise, it is fundamental to distinguish between different types of outcomes: a study reporting a recorded exit is not equivalent

to one predicting a risk score, and neither should be confused with an intervention evaluation demonstrating effective prevention.

A coherent response consists of developing and prospectively evaluating school-family support programs that address both learning and attendance, as well as practical constraints. Such programs should integrate academic components (learning reinforcement, prevention of repetition), participation components (fostering sense of belonging, psychosocial support), and material components (financial support, reduction of transportation and caregiving barriers).

Risk prediction should not be confused with dropout prevention. Machine learning models can identify at-risk students with moderate accuracy, but improved predictive discrimination does not equate to verified dropout reduction. For this reason, evaluation studies must measure actual dropout and completion, specify transfers and delayed graduation, and assess equity in outcomes.

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