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Prevalence and Determinants of Malnutrition among Primary School-Going Children in Jammu & Kashmir: A Review

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Abstract: ***Background: Malnutrition remains a leading contributor to childhood morbidity worldwide, yet school-age children (approximately 5-14 years) are studied far less often than children under five years, and this gap is especially wide for Jammu & Kashmir (J&K), a Union Territory marked by a sharp Kashmir-valley/Jammu-division physiographic divide, hill and pastoral communities, and historically limited school-age nutrition surveillance. Objective: To synthesise, in a single narrative review, the prevalence and determinants of malnutrition among primary school-going children across J&K, benchmark these findings against state, national and South Asian data, and identify the principal evidence gaps. Methods: Literature published between 1990 and September 2026 was identified through PubMed, ResearchGate, Google Scholar, DOAJ and journal websites using combinations of "malnutrition", "undernutrition", "stunting", "wasting", "school children" and "Jammu and Kashmir". Twenty-two sources meeting eligibility criteria - fourteen J&K-specific primary studies and eight supporting national/global references - were synthesised narratively. Findings: Reported undernutrition prevalence among J&K school-age children ranged from 18.9% to 41.3% across studies, with stunting 21.1-28.5%, wasting 9.4-24.6%, and Composite Index of Anthropometric Failure estimates consistently exceeding single-indicator prevalence. Overweight/obesity, though lower in absolute terms in most districts, is emerging rapidly in Kashmir-valley schoolchildren (overweight 24.7%, obesity 11.5%, International Obesity Task Force criteria), indicating a developing double burden. Consistently reported determinants included household poverty and farming/pastoral occupation, maternal illiteracy, poor sanitation, Scheduled Tribe/caste-based social exclusion, and remote hill or nomadic residence, while child age and sex patterned both undernutrition and overweight risk. Conclusion: Existing evidence, though real and locally grounded, is fragmented across small, geographically uneven, mostly cross-sectional studies concentrated in a handful of districts (chiefly Doda, Budgam and parts of the Kashmir valley), with the wider Jammu division, border districts and nomadic populations markedly under-represented. A representative, division-stratified survey of primary school-going children, integrated with routine school health screening, is needed to guide targeted nutrition programming in J&K.***

Keywords: Malnutrition; Child Nutrition Disorders; Schools; Jammu and Kashmir; India; Stunting; Nutritional Status

1. Introduction

Malnutrition, encompassing both undernutrition (stunting, wasting, underweight and thinness) and overnutrition (overweight and obesity), remains one of the most consequential and preventable threats to child health worldwide.[1] The most recent Joint Child Malnutrition Estimates from UNICEF, the World Health Organization (WHO) and the World Bank place the global burden at approximately 150 million stunted, 43 million wasted and 36 million overweight children under five years of age, with the overwhelming majority living in Asia and Africa.[2] Nutrition surveillance and programming have, however, historically concentrated on children below five years of age, leaving the primary- and upper-primary-school-going age group - roughly five to fourteen years - comparatively neglected, despite this period covering a "second window" of growth and rapid accrual of cognitive capacity, micronutrient stores and school performance.

A 2024 scoping review of school-age nutrition across South Asia identified 296 eligible studies published between January 2016 and November 2022, but found the evidence fragmented and geographically skewed: just over half originated from India, and within India several northern states, including J&K, were represented by only a handful of small, geographically clustered studies.[3] Reported thinness across the region ranged from 1.9% to 88.8%, wasting from 3% to 48%, underweight from 9.5% to 84.4%, and overweight from 0.2% to 73% - a heterogeneity that itself signals how little is systematically known about specific sub-national populations such as J&K's school-going children.

The stakes of this evidence gap are high. Childhood undernutrition has well-documented, often irreversible consequences for adult health, cognitive development, educational attainment and, cumulatively, national economic productivity.[4] At the same time, India - like much of South Asia - is now confronting a "double burden" of malnutrition, in which undernutrition persists alongside a rising prevalence of childhood overweight and obesity, sometimes within the same district or even the same household.[5]

J&K offers a distinctive and under-examined setting in which to study this burden. The Union Territory spans two markedly different physiographic and cultural zones - the Kashmir valley and the Jammu division - together with high-altitude Himalayan, Pir Panjal and Chenab-valley tracts that are home to hill, Scheduled Tribe and semi-nomadic Gujjar-Bakarwal pastoral communities. According to the fifth National Family Health Survey (NFHS-5, 2019-21), 27% of J&K's children under five years are stunted, 19% are wasted and 21% are underweight - figures somewhat more favourable than the corresponding all-India averages of 35.5%, 19.3% and 32.1%, but that nonetheless represent a substantial burden and conceal wide inter-district and inter-community

variation.[6,7] Whether this comparatively favourable under-five picture extends into the school-going years, and which locally specific social, economic and geographic factors shape it, has received far less systematic attention than the under-five period.

This review therefore brings together, in a single synthesis, the available primary evidence specifically on primary school-going children (approximately five to fourteen years) in J&K. It aims to (i) summarise the reported prevalence of undernutrition and overnutrition across the studies conducted to date; (ii) synthesise the determinants identified across these studies within a structured conceptual framework; (iii) benchmark J&K's school-age burden against state, national and South Asian data; and (iv) identify the principal evidence gaps that should guide future research, surveillance and school health programming in the region.

2. Methods

This is a narrative (non-systematic) review. Literature published between 1990 and September 2026 was identified through PubMed, ResearchGate, Google Scholar, DOAJ (Directory of Open Access Journals) and individual journal websites, using combinations of the search terms "malnutrition", "undernutrition", "nutritional status", "stunting", "wasting", "underweight", "thinness", "overweight", "obesity", "school children", "school-going" and "Jammu and Kashmir", together with named districts of the Union Territory. Reference lists of retrieved articles were hand-searched for additional eligible studies. Studies were eligible for inclusion if they reported original anthropometric or nutritional-status data for school-going children (approximately 5-14 years, with limited extension to 15-19 years where a study's sample explicitly spanned this range) resident in J&K, using indices referenced to a recognised growth standard - chiefly the WHO 2007 growth reference for children and adolescents aged 5-19 years, or the International Obesity Task Force (IOTF) body mass index cut-offs.[8,17] National (NFHS-5) and South Asian regional sources were retained as comparators rather than as primary J&K-specific evidence. Case reports, editorials, studies confined to children under five years without a separable school-age subgroup, and sources for which prevalence or determinant data could not be extracted were excluded.

The literature-selection process is summarised in Figure 1. Findings were synthesised narratively and, for the determinants section, organised around an adaptation of the UNICEF conceptual framework on maternal and child nutrition, which distinguishes immediate, underlying and basic (structural) causes of malnutrition.[9]

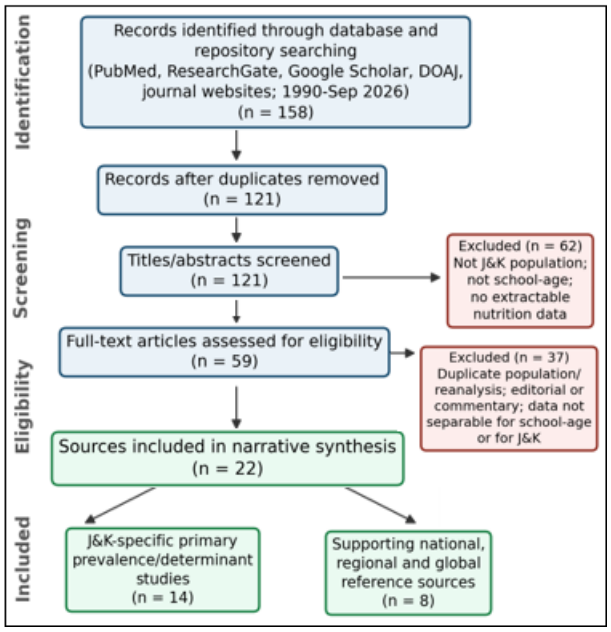


Figure 1: Flow diagram of the literature search and selection process for this review

Given the small number and heterogeneous methodology of the available primary studies - differing in age ranges, growth references, sampling frames and reported indices - this review synthesises findings narratively rather than through meta-analysis; reported prevalence figures should therefore be read as illustrative of pattern and direction rather than as pooled, directly comparable estimates.

3. Epidemiological Burden of Malnutrition among School-Going Children in J&K

3.1 State-level context

Before turning to school-age-specific evidence, it is useful to situate J&K within the national picture. NFHS-5 data (2019-21) place stunting, wasting and underweight among J&K children under five at 27%, 19% and 21% respectively, against all-India figures of 35.5%, 19.3% and 32.1%.[6] A secondary analysis of the same survey round found that stunting among under-five children in J&K was strongly patterned by maternal education, affecting 30% of children of illiterate mothers compared with 26% of children whose mothers had received any formal schooling - an educational gap attributed substantially to differences in antenatal care use, household wealth and dietary diversity associated with maternal schooling.[7] These under-five figures, however, are not directly transferable to the school-going years, for which dedicated, J&K-specific surveillance is largely absent from national survey instruments.

3.2 Primary Studies from the Kashmir Division

The earliest available anthropometric data for J&K's school-age children come from a 1991 study of 70 children under ten years from the highland Kashmiri village of Basmina, which found weight-for-age, height-for-age and mid-upper-arm-circumference-for-age indices averaging close to -2.0 Z-scores below United States reference medians, with the youngest, pre-school-aged children showing the most severe deficits.[10] Two decades later, a cross-sectional survey of

school children aged 5-14 years in a rural health block of Kashmir, using the WHO Z-score system, reported an overall undernutrition prevalence of 19.2%, with stunting rising with age to 28.5% among 12-year-old boys and wasting showing marked age-sex variation.[11] A companion analysis of a similar rural Kashmiri school-going population using the Composite Index of Anthropometric Failure (CIAF) - which captures children failing on any of the height-for-age, weight-for-age or BMI-for-age indices, including overlapping deficits that single indices miss - found an overall anthropometric-failure prevalence of 25.6%, appreciably higher than any single conventional index would suggest.[12]

Beyond the settled rural population, a study of Gujjar pastoral communities across the Great Kashmir Himalayan range documented pervasive undernutrition among children using the traditional Indian Academy of Pediatrics weight-for-age classification, with a large majority of pre-school-aged children falling below normal nutritional grades; the authors linked this to seasonal variation in dietary availability and to the community's semi-nomadic, high-altitude pastoral livelihood.[13] This pattern - of highland and pastoral populations bearing a disproportionate nutritional burden relative to settled lowland communities - recurs across the Kashmir-division literature and is discussed further in the determinants section below.

3.3 Primary Studies from the Jammu Division

Evidence from the Jammu division is concentrated in a series of studies conducted in Doda district. An initial preliminary study of 100 school-going children aged 5-14 years in village Ganota established associations between household socioeconomic factors, living conditions and child undernutrition.[14] A subsequent, larger cross-sectional study of 360 school-going children aged 6-14 years across three educational zones of the district reported stunting in 21.1%, wasting in 9.4% and underweight in 18.9% of children; a composite-index re-analysis of the same broad population found that overall anthropometric-failure burden substantially exceeded the prevalence captured by any single conventional index, echoing the Kashmir-division CIAF finding above.[15] More recently, a study of 200 Scheduled Tribe children aged 6-10 years in Reasi district found high stunting prevalence affecting both sexes, with height and weight falling below both WHO and Indian Council of Medical Research benchmarks; economic status, family income, sanitation access, headship of household and employment nature were identified as key correlates.[19]

3.4 An Emerging Double Burden

Alongside this persistent undernutrition, overweight and obesity are emerging as a measurable problem in parts of J&K, particularly in the more urbanised Kashmir valley. A large community-based study of 9,576 school children aged 5-15 years across the valley found, by IOTF criteria, overweight in 24.7% and obesity in 11.5% of children, with broadly similar figures using CDC criteria; obesity was significantly associated with age above ten years and, notably, with female sex, while urban school location was not independently associated with obesity risk.[16,17] A smaller, more recent study of 150 children aged 6-19 years in two government schools of Budgam district illustrates the coexistence of both forms of malnutrition within a single, relatively small sample: underweight in 34.7%, overweight in 3.3% and obesity in 3.3% of children, for an overall malnutrition prevalence of 41.3%.[18] Table 1 summarises the primary studies reviewed, and Figure 2 compares their headline prevalence estimates alongside the NFHS-5 state benchmark.

Table 1: Summary of primary studies reporting prevalence of malnutrition among school-age children in Jammu & Kashmir

Author(s), Year	Study Area (Division)	Design & Sample	Age Group	Reference/ Index	Key Prevalence Findings
Himmelgreen et al.,[10] 1991	Highland village (Basmina), Kashmir division	Anthropometric survey; n=70	<10 years	US reference; Z-scores	WAZ, HAZ and MUAC-for-age ~ -2.0 Z below reference median; pre-school children showed moderate-to-severe malnutrition
Fazili et al,[11] 2012	Rural health block, Kashmir division	Cross-sectional; WHO Z-score system	5-14 years	WHO Z-score	Overall undernutrition 19.2%; stunting up to 28.5% (12-y boys); wasting showed marked age-sex variation
Anjum et al,[12] 2012	Rural Kashmir division	Cross-sectional; CIAF	School-going	CIAF	Composite anthropometric failure 25.6%
Rather & Fayaz,[13] 2015	Gujjar pastoral settlements, Great Kashmir Himalayan range	Cross-sectional survey; IAP classification	0-14 years	IAP % of median	Large majority of pre-school children below normal weight-for-age grades; seasonal dietary variation implicated
Katoch & Sharma,[14] 2016	Village Ganota, Doda district, Jammu division	Cross-sectional; n=100	5-14 years	WHO-2007 (WAZ/ HAZ/BMIZ)	Preliminary study establishing socioeconomic and living-condition correlates of undernutrition
Katoch & Sharma,[15] 2017	3 educational zones, Doda district, Jammu division	Cross-sectional; n=360	6-14 years	WHO-2007	Stunting 21.1%; wasting 9.4%; underweight 18.9%; CIAF re-analysis showed markedly higher overall burden
Bhat et al,[16] 2021	Kashmir valley (multi-district)	Community-based cross-sectional; n=9,576	5-15 years	CDC and IOTF[17] criteria	Overweight 24.7%, obesity 11.5% (IOTF); underweight ~6.5%, overweight ~12%, obesity ~10% (CDC)
Mehwish et al.,[18] 2024	Budgam district, Kashmir division	Cross-sectional; n=150 (2 govt. schools)	6-19 years	Standard weight-height classification	Underweight 34.7%; overweight 3.3%; obesity 3.3%; overall malnutrition 41.3%
Katoch & Nawaz,[19] 2025	Reasi district, Jammu division	Cross-sectional; n=200 Scheduled Tribe children	6-10 years	HAZ; WHO/ICMR standards	High stunting prevalence in both sexes; height and weight below WHO and ICMR benchmarks

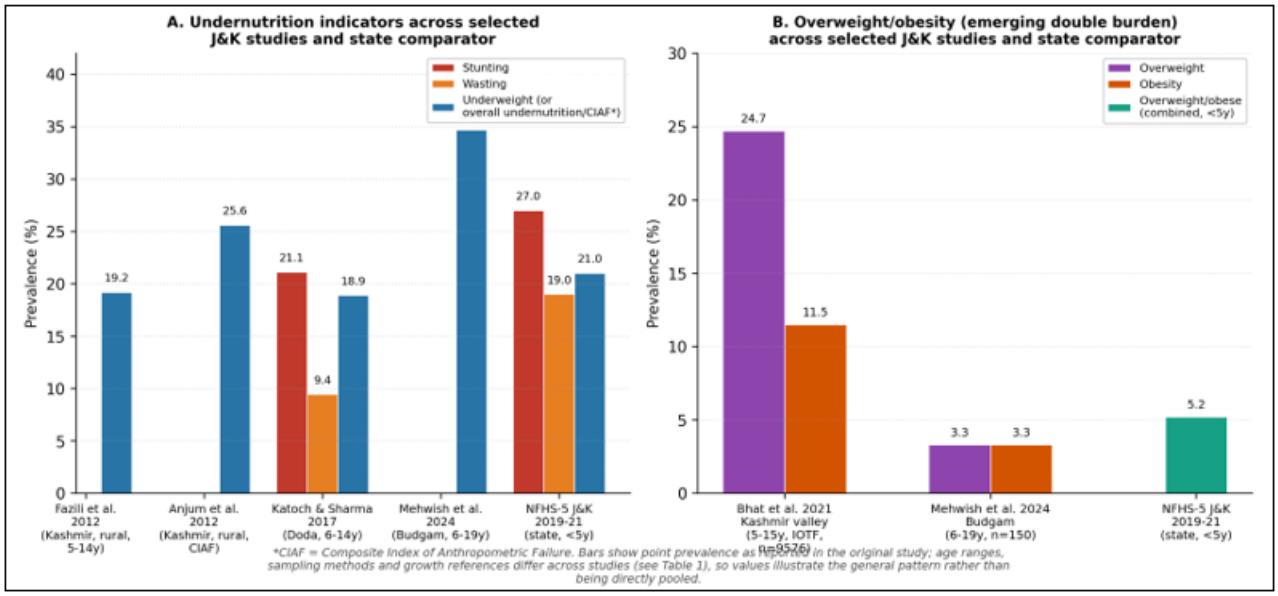


Figure 2: Prevalence of undernutrition indicators (panel A) and overweight/obesity (panel B) across selected J&K primary studies, alongside the NFHS-5 J&K state (under-five) benchmark. CIAF = Composite Index of Anthropometric Failure. Because age ranges, sampling methods and growth references differ across the underlying studies (see Table 1), values illustrate the general pattern rather than pooled, directly comparable estimates.

4. Determinants of Malnutrition among School-Going Children in J&K

A 2022 systematic review of the global determinants literature concluded that maternal education, household income and maternal nutritional status are the most consistently reported correlates of child malnutrition across settings - a pattern broadly echoed, with locally specific inflections, across the J&K studies reviewed here.[20] Table 2 organises the determinants reported across these studies by domain, and Figure 3 situates them within a conceptual framework adapted from UNICEF's model of immediate, underlying and basic causes of malnutrition.[9]

Household economic status and occupation

Family economic status and occupation were repeatedly and significantly associated with undernutrition. In the Kashmir rural-block study, family occupation and household economic status were both significantly associated with underweight.[11] Farming-household status was an explicit selection criterion - and implicit determinant - in the Doda-district studies, and household income, sanitation access and employment nature of the household head emerged as significant correlates of stunting among Reasi's Scheduled Tribe children.[14,19]

Maternal factors

Maternal education recurs as a determinant across both the school-age primary literature and the under-five NFHS-5 analysis: children of illiterate mothers in J&K showed a higher prevalence of stunting than children of literate mothers, a gap attributable in part to differences in antenatal care, household wealth and dietary diversity associated with maternal schooling.[7] In the Kashmir rural-block study, maternal education specifically predicted wasting.[11]

Social exclusion and caste

Belonging to a socially marginalised or Scheduled Tribe community was independently associated with poorer nutritional and health status of women and children in J&K, reflecting broader patterns of social exclusion that intersect with, but are not reducible to, household poverty.[21] The Reasi study's focus on Scheduled Tribe children specifically, and its finding of high stunting prevalence linked to economic and household-headship factors, is consistent with this pattern.[19]

Household environment and WASH

Sanitation access featured explicitly among the significant correlates of stunting in Reasi district, and "living conditions" were an explicit focus of the earliest Doda-district study, pointing to the underlying role of water, sanitation and hygiene (WASH) conditions even where these were not always isolated as independent statistical determinants.[14,19]

Geography, ecology and livelihood

A recurring theme across the Kashmir-division literature is the elevated nutritional burden borne by highland, remote and pastoral populations relative to settled lowland comparators. The 1991 Basmina study explicitly compared highland Kashmiri children unfavourably with reference populations, and the Gujjar pastoral-community study attributed undernutrition in part to seasonal variation in dietary availability tied to a semi-nomadic, high-altitude livelihood.[10,13] This geographic patterning is a structural determinant with few close parallels in the wider Indian literature, reflecting J&K's distinctive terrain.

Child-level biological factors

Age and sex patterned both undernutrition and overnutrition risk. Stunting and wasting varied by age-sex stratum in the Kashmir rural-block study, while in the Kashmir-valley overweight/obesity study, obesity risk was significantly higher among children older than ten years and, notably, among girls rather than boys - a reversal of the male-predominant pattern seen in several of the undernutrition-focused studies, and one that merits closer, sex-stratified investigation.[11,16]

Residence type

Interestingly, urban school location was not independently associated with obesity risk in the Kashmir-valley study, suggesting that dietary and lifestyle transitions associated with overweight risk may no longer be confined to urban settings in the valley.[16]

Table 2: Determinants of malnutrition reported among school-going children in Jammu & Kashmir, by domain

Determinant Domain	Specific Factors Reported	Direction of Association	Source Study(ies)
Household economic status	Low family income; household economic/wealth status	Higher malnutrition in poorer households	Fazili et al.[11] ($p<0.001$); Katoch & Sharma[14]; Katoch & Nawaz[19]
Parental/household occupation	Agricultural/farming labour; nature of household head's employment	Associated with undernutrition	Katoch & Sharma[14]; Katoch & Nawaz[19]
Maternal education	Maternal literacy/schooling	Illiterate/less-educated mothers → higher wasting/stunting	Fazili et al.[11] (wasting, $p=0.014$); Tariq et al.[7] (NFHS-5: stunting 30% vs 26%)
Social stratification	Caste, social exclusion, Scheduled Tribe status	Marginalised groups at higher risk	Katoch & Nawaz[21]; Katoch & Nawaz[19] (Reasi ST children)
Household environment / WASH	Sanitation-facility access; living conditions	Poor sanitation associated with undernutrition	Katoch & Nawaz[19]; Katoch & Sharma[14]
Geography and ecology	Highland/remote residence; agro-pastoral, semi-nomadic livelihood; seasonal food-diet variation	Elevated malnutrition risk vs settled lowland comparators	Himmelgreen et al.[10]; Rather & Fayaz[13]
Child-level biological factors	Age; sex	Stunting/wasting vary by age-sex strata; obesity higher in >10y and in girls	Fazili et al.[11]; Bhat et al.[16] (OR 1.44 age>10y; OR 1.29 female sex)
Residence type	Urban vs rural school location	No significant protective effect of urban residence against obesity	Bhat et al.[16] (OR 1.08, ns)
Cross-cutting global evidence	Maternal education, household income, maternal nutritional status (most consistent determinants worldwide)	Consistently associated with child malnutrition across settings	Katoch[20] (systematic review)

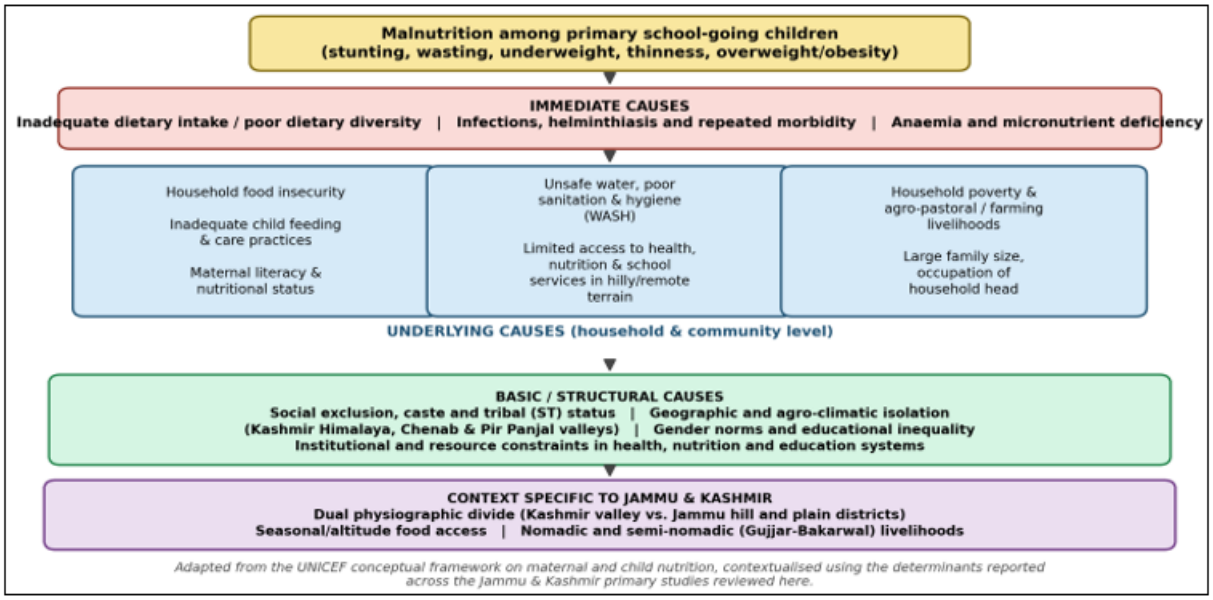


Figure 3: Conceptual framework of the determinants of malnutrition among primary school-going children in J&K, adapted from the UNICEF conceptual framework on maternal and child nutrition and contextualised using the determinants reported across the studies reviewed here.

5. Consequences: Nutritional Status, School Attendance and Academic Performance

Beyond their direct health implications, undernutrition and overnutrition in childhood are linked to impaired cognitive development, reduced educational attainment and diminished adult economic productivity at the population level.[4] Within J&K specifically, evidence from the Doda-district cohort suggests that these functional consequences are already measurable at the school level: nutritional status among 6-14-year-old children was associated with school attendance, and separately with academic performance, in analyses of the same population that anchors much of the Jammu-division prevalence literature reviewed above.[22,15] While these findings derive from a single district and cannot be generalised across J&K without further confirmation, they are consistent with the wider international evidence linking childhood nutritional status to educational outcomes, and they strengthen the case for treating school nutrition as an educational as well as a health policy concern.

6. Research Gaps and the Novelty of This Review

Three gaps stand out from the evidence synthesised above. First, geographic coverage is markedly uneven: the great majority of primary studies cluster in Doda district (Jammu division) and in parts of the Kashmir valley, while large parts of the Union Territory - including the border districts of Kupwara, Poonch and Rajouri, and much of the Jammu plains - are essentially unrepresented in the school-age malnutrition literature identified for this review. Second, methodological heterogeneity - differing age ranges, growth references (WHO Z-scores, CDC criteria, IOTF cut-offs and the older Indian Academy of Pediatrics classification), and single-index versus composite-index reporting - makes direct comparison across studies difficult and likely contributes to some of the wide prevalence ranges summarised in Table 3. Third, and most consequentially, no identified study offers a division-stratified, adequately powered, representative survey of primary school-going children across J&K as a whole; existing studies are predominantly small, single-district, cross-sectional convenience or purposive samples.

Table 3 places J&K's school-age findings alongside the state's own under-five (NFHS-5) benchmark, the national under-five picture, and the wide range reported for school-age children across South Asia as a whole.[3,6] The comparison underscores two points that constitute the substantive contribution - the novelty - of this review. First, J&K's school-age prevalence estimates, where available, sit broadly within the wide South Asian range but are not separately visible within any single national or regional dataset; this review draws these locally generated figures together into one place. Second, the coexistence of substantial residual undernutrition (Table 1; Figure 2, panel A) with a measurable and apparently rising overweight/obesity burden concentrated in the Kashmir valley (Figure 2, panel B) has not previously been juxtaposed for J&K's school-going population specifically, despite this "double burden" pattern being well recognised at the national Indian level.[5] Framing these findings within a single, explicitly J&K-contextualised determinants framework (Figure 3) is intended to support more targeted, geographically and socially differentiated nutrition programming than a generic national or state-level approach would allow.

Table 3: Comparative prevalence of malnutrition indicators: J&K state, national India, J&K school-age primary studies, and South Asia school-age children

Indicator	J&K, NFHS-5[6] (state, <5y)	India, NFHS-5[6] (national, <5y)	J&K School-Age Primary Studies (range, this review)	South Asia School-Age Children, 5-19y[3]
Stunting	27%	35.50%	21.1-28.5%*	3.7-71.7%
Wasting	19%	19.30%	9.4-24.6%*	3-48%
Underweight / overall undernutrition	21%	32.10%	18.9-41.3%	9.5-84.4%
Overweight / obesity	5.2% (combined)	NR	6.6-36.2% (combined)†	0.2-73% (overweight) / 0-38% (obesity)

**Age-sex stratum-specific figures from Fazili et al.[11]; see Table 1 for details. †Overweight (24.7%) plus obesity (11.5%) from Bhat et al.[16] NR = not reported/extracted for this comparator.*

7. Recommendations

Building on the gaps identified above, four directions merit priority. First, a representative, division- and terrain-stratified nutrition survey of primary school-going children - covering the Kashmir valley, Jammu plains, and hill/pastoral tracts separately - would allow the currently fragmented district-level picture to be replaced with population-representative estimates and would permit meaningful tracking of the double burden over time. Second, routine school-based growth monitoring, integrated with existing platforms such as school health screening, mid-day meal supervision and anaemia/deworming rounds, could generate continuous surveillance data at far lower marginal cost than repeated ad hoc surveys, while also enabling early identification and referral of individual children. Third, given the recurring role of maternal education, household poverty, sanitation access and social exclusion identified across the reviewed studies, nutrition-specific interventions (dietary diversification, micronutrient supplementation, deworming) should be paired with nutrition-sensitive action on WASH infrastructure, girls' and women's education, and targeted support for Scheduled Tribe and semi-nomadic Gujjar-Bakarwal communities, consistent with the underlying- and basic-cause layers of the conceptual framework in Figure 3. Finally, future primary research in J&K would benefit from adopting a common growth reference - the WHO 2007 school-age reference is the most widely used internationally - and from routinely reporting composite anthropometric-failure indices alongside single indicators, to make future studies more directly comparable with one another and with the national and South Asian literature.

8. Conclusion

The available evidence, though geographically uneven and methodologically heterogeneous, consistently indicates that malnutrition remains a substantial problem among primary school-going children in Jammu & Kashmir, with undernutrition prevalence in the primary studies reviewed ranging from roughly one-fifth to two-fifths of children depending on district, age group and index used, and with overweight and obesity now measurable, and in the Kashmir valley substantial, alongside it. Household poverty and occupation, maternal education, sanitation, social exclusion and the region's distinctive highland and pastoral geography recur as determinants across the literature. Closing the identified gaps - through a representative, division-stratified survey and stronger integration of nutrition surveillance into routine school health platforms - would place future nutrition policy and programming in J&K on a substantially stronger evidence footing than is currently available.

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References

[1] World Health Organization. Malnutrition [Internet]. Geneva: WHO; 2024 [cited 2026 Sep 11]. Available from: https://www.who.int/news-room/fact-sheets/detail/malnutrition
[2] UNICEF, World Health Organization, World Bank Group. Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group joint child malnutrition estimates – key findings of the 2025 edition. Geneva: World Health Organization; 2025.
[3] Choedon T, Brennan E, Joe W, Lelijveld N, Huse O, Zorbas C, et al. Nutritional status of school-age children (5-19 years) in South Asia: a scoping review. Matern Child Nutr. 2024;20(2):e13607.
[4] Victora CG, Adair L, Fall C, Hallal PC, Martorell R, Richter L, et al. Maternal and child undernutrition: consequences for adult health and human capital. Lancet. 2008;371(9609):340-57.
[5] Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. Lancet. 2013;382(9890):427-51.
[6] International Institute for Population Sciences (IIPS), ICF. National Family Health Survey (NFHS-5), India, 2019-21: Jammu and Kashmir. Mumbai: IIPS; 2021.
[7] Tariq I, Khan JI, Malik MA. Decomposing acute malnutrition by educational inequality of mother's among under five children in Jammu and Kashmir. Sci Rep. 2023;13(1):1-8.
[8] de Onis M, Onyango AW, Borghi E, Siyam A, Nishida C, Siekmann J. Development of a WHO growth reference for school-aged children and adolescents. Bull World Health Organ. 2007;85(9):660-7.
[9] UNICEF. UNICEF conceptual framework on maternal and child nutrition. New York: UNICEF; 2020.
[10] Himmelgreen DA, Dannenhoffer R, Baht I, Lee RV. Anthropometric assessment of nutritional status among highland Kashmiri children: reevaluating the assumption of female nutritional disadvantage. Am J Hum Biol. 1991;3(3):239-49.
[11] Fazili A, Mir AA, Pandit IM, Bhat IA, Rohul J, Shamila H. Nutritional status of school age children (5-14 years) in a rural health block of North India (Kashmir) using WHO Z-score system. Online J Health Allied Sci. 2012;11(2):2.
[12] Anjum F, Pandit MI, Mir AA, Bhat IA. Z score and CIAF: a comprehensive measure of magnitude of undernutrition in a rural school-going population of Kashmir, India. Glob J Med Public Health. 2012;1(5):46-9.
[13] Rather GM, Fayaz S. Malnutrition among school children (0-14 years) of Gujars of Great Kashmir Himalayan range (J&K state). Int J Sci Res Publ. 2015;5(3):1-9.
[14] Katoch OR, Sharma A. Socioeconomic factors, living conditions and child undernutrition among school going children in rural areas of district Doda, Jammu & Kashmir, India: a preliminary study. Indian J Nutr. 2016;3(1):123.
[15] Katoch OR, Sharma A. Nutritional status and academic performance: a study on school-aged children in rural areas of Jammu & Kashmir, India. Indian J Soc Res. 2017.
[16] Bhat JA, Bhat MH, Masoodi SR, Ahmad PO, Bashir MI, Wani AI, et al. Prevalence and factors associated with overweight and obesity among school children in Kashmir valley: a community based cross-sectional study. JMS SKIMS. 2021;24(3):11-7.
[17] Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a standard definition for child overweight and obesity worldwide: international survey. BMJ. 2000;320(7244):1240-3.
[18] Mehwish M, Manzoor A, Amin U. Prevalence of malnutrition among school children: a cross-sectional study in Kashmir, India. Evidence. 2024;2(2):37.
[19] Katoch OR, Nawaz A. Prevalence of stunting among scheduled tribe children aged 6-10 years in Reasi district of Jammu & Kashmir, India. Ecol Food Nutr. 2025;64(3):149-70.
[20] Katoch OR. Determinants of malnutrition among children: a systematic review. Nutrition. 2022; 96: 111565.
[21] Katoch OR, Nawaz A. Social exclusion, caste and health status of women and children in Jammu & Kashmir, India. Am Int J Res Humanit Arts Soc Sci. 2018;23(1):75-9.
[22] Sharma A, Katoch OR. Impact of nutritional status on school attendance of children: evidences from primary and middle schools in Jammu & Kashmir. Int J Creat Res Thoughts. 2018;6.