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The Global Burden of Childhood Malnutrition: A Synthesized Review of Socioeconomic, Environmental, and Spatial Determinants in Low- and Middle-Income Countries

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Abstract
Early childhood malnutrition remains a formidable crisis within global public health, heavily concentrated among children under the age of five in low- and middle-income countries (LMICs). Historically characterized by phenotypes such as stunting (low height-for-age), wasting (low weight-for-height), and underweight status, this pathology severely compromises linear growth, permanent cognitive architecture, and lifetime economic productivity. Concurrently, it drives elevated rates of pediatric morbidity and mortality. This comprehensive review synthesizes data from an array of cross-sectional and community-based investigations to map the current prevalence and multi-tiered etiologies of nutritional deficits in children aged 0–59 months. Recent demographic and health frameworks reveal alarming clusters of stunting and underweight conditions that frequently breach the critical thresholds established by the World Health Organization (WHO), particularly across vulnerable corridors of South Asia and sub-Saharan Africa. The underlying mechanics of this crisis stem from an intricate, shifting intersection of biological vulnerabilities, socioeconomic status, and ambient environmental conditions. Granular multivariate analyses regularly identify low maternal education and depressed household wealth as primary upstream drivers of systemic anthropometric failure. Furthermore, immediate impediments—such as suboptimal infant and young child feeding (IYCF) regimens, minimal dietary diversity, the omission of exclusive breastfeeding, low birth weight, and recurrent infectious challenges like acute diarrhea—collectively compound these structural risks. Beyond these conventional paradigms, emerging empirical paradigms demonstrate that macro-level environmental stress and spatial disparities severely aggravate the problem. Regional aridity and deficient water, sanitation, and hygiene (WASH) infrastructure play substantial roles. Less visible but equally potent variables include compromised maternal mental health, such as maternal depression, and the digital divide that restricts access to modern health communication channels. Ultimately, this review maps out the contemporary burden of under-five malnutrition by integrating socioeconomic, environmental, and geographic data across developing contexts. Uprooting this entrenched health crisis requires moving away from fragmented, single-issue interventions toward comprehensive, multi-sectoral strategies. Sustainable solutions require blending nutrition-specific programmatic inputs with broad nutrition-sensitive policies that systematically empower women, mitigate structural poverty, expand safe sanitation networks, and build climate-resilient public health infrastructure. Childhood malnutrition remains a persistent challenge in LMICs. Accumulating evidence confirms that stunting, wasting, and underweight conditions are not merely symptoms of isolated food scarcity. Instead, they represent complex physical adaptations to broader disadvantages where socioeconomic status, maternal characteristics, and environmental hazards intersect. These dynamics confirm that childhood undernutrition is a multi-layered public health challenge driven by deep-rooted structural forces. Consequently, prioritizing localized, community-led initiatives will be vital to accelerating progress toward the United Nations Sustainable Development Goals (SDGs) and ensuring equitable development for the next generation.

Keywords: *Child Malnutrition, Stunting, Wasting, Underweight, Socioeconomic Determinants, Maternal Education, Under-Five Children, Public Health.*

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I. Introduction

Securing proper nutritional support during the first five years of life establishes the baseline for lifelong physical growth, cognitive maturity, and metabolic health (Gebre et al., 2019). Yet, despite decades of explicit

international commitments aimed at improving maternal and child health outcomes, undernutrition in early childhood remains an incredibly stubborn public health emergency, placing an unequal burden on low- and middle-income nations (Hussain et al., 2025). The condition presents primarily through stunting, wasting, and underweight phenotypes. These states trigger a damaging cascade of developmental delays. Children trapped in acute or chronic undernutrition face heightened risks of permanent cognitive deficits, compromised immune function, and heightened vulnerability to both communicable and non-communicable diseases. These factors collectively sustain the high global rates of under-five mortality (Suratri et al., 2023).

The causal pathways of childhood malnutrition are deeply tangled and rooted in a matrix of cultural, economic, and biological factors. A large body of existing research highlights low maternal educational attainment, poor household wealth, broken sanitation networks, and flawed feeding practices as the main drivers of anthropometric failure in young populations (Jasani & Aghera, 2026). At the same time, recent investigations emphasize how macro-level environmental changes, geographic inequalities, and uneven access to quality clinical care worsen these disparities within historically marginalized communities (Sarkar, 2016). Because these disparities persist, continuous research remains essential to isolate and understand how these intersecting risk factors operate. Developing a precise, contextual understanding of these distinct factors is crucial for creating targeted, multi-sectoral public health strategies that can disrupt the intergenerational transmission of malnutrition and foster sustainable human capital.

II. Material and Methods

This systematic review examined community-based, cross-sectional empirical studies published between 2013 and 2026 focusing on LMICs. The selection criteria targeted investigations evaluating the nutritional profiles and associated risk dynamics of children aged 6 to 59 months. We gathered relevant research by querying major digital indexes, including PubMed, Academia, Google Scholar, and ResearchGate. To maintain sample consistency, the reviewed datasets focused primarily on cohabiting mother-child dyads with a documented residential tenure of at least six consecutive months in their respective study locations (Fufa & Laloto, 2021). The underlying methodologies of these primary sources typically relied on multi-stage stratified systematic random sampling frameworks to secure balanced representations across diverse urban and rural contexts (Jasani & Aghera, 2026; Suratri et al., 2023). Statistical power in these source studies was routinely calculated using the single population proportion formula, adjusting for a baseline 10% non-response buffer and specific design effects.

The field data collection in the compiled studies was conducted through direct face-to-face interviews using pre-tested, semi-structured survey instruments. These assessments recorded information on household sociodemographic positions, maternal health histories, micro-environments, and specific child feeding routines (Gebre et al., 2019). Physical anthropometric data were gathered following standard WHO measurement guidelines. Fieldworkers used calibrated digital scales to record child weight to a precision of 0.1 kg. For height, standard stadiometers were used for older children, while horizontal infantometers were used to capture the recumbent length of infants under 24 months. Mid-upper arm circumference (MUAC) was measured using standardized synthetic UNICEF MUAC tapes (Shah et al., 2016).

These physical measurements were used to calculate standard anthropometric indices, including weight-for-age (WAZ), height-for-age (HAZ), and weight-for-height (WHZ) scores, which were converted into Z-scores using WHO Anthro software. In line with global epidemiological conventions, severe nutritional deficits—stunting, wasting, and underweight status—were defined as any anthropometric value falling below -2 standard deviations (-2 SD) from the WHO reference median (Bhandari & Chhetri, 2013). The synthesized statistical analyses used SPSS architectures, relying on bivariate and multivariable logistic regression models to identify the main predictors of malnutrition, applying a standard significance threshold of $p < .05$.

III. Result and Discussion

Prevalence and Multidimensional Burden of Anthropometric Failure

Aggregating recent community-level and nationwide datasets reveals a stark, unchanging burden of developmental deficits among children under the age of five. Traditional individual metrics—stunting, wasting, and underweight status—frequently cross into the critical emergency zones defined by the WHO. For instance, targeted community tracking within the marginalized Musahar population in Nepal's urban Siraha District found extreme rates of nutritional distress: stunting reached 47%, underweight status stood at 36%, and wasting was recorded at 21%, with 10% of the sample experiencing all three deficits concurrently (Shah et al., 2016). Similarly, regional data from West Bengal, India, documented a 51.34% prevalence of stunting, 41.44% for underweight status, and 22.47% for wasting (Sarkar, 2016).

To better capture this reality, modern public health studies increasingly use the Composite Index of Anthropometric Failure (CIAF). Researchers argue that relying on separate, isolated measurements underestimates the true scope of overlapping nutritional deprivation. Analyzing India's National Family Health

Survey (NFHS-5, 2019–2021) through the CIAF lens reveals that 51.68% of children under five experience at least one form of structural anthropometric failure. Within this group, 15.93% faced isolated stunting, while 4.84% simultaneously showed stunting, wasting, and underweight characteristics, highlighting a deeply complex mix of acute and chronic physical strain. Parallel assessments in western India recorded a 34.2% stunting rate and a 28.5% underweight rate, confirming that specific spatial and regional pockets continue to experience severe growth deficits (Jasani & Aghera, 2026).

Socioeconomic and Maternal Educational Determinants

Multivariate logistic regression models across the reviewed literature consistently identify household socioeconomic position and maternal education as the two most powerful structural predictors of childhood nutrition. Household poverty functions as a central barrier. It restricts a family's purchasing power, which directly limits their access to diverse, nutrient-dense foods and essential clinical services. In South Sulawesi, Indonesia, approximately 49% of children diagnosed with malnutrition came from low-income households, and statistical models showed a strong negative correlation between family economic status and undernutrition ($p = 0.003$) (Esmiralda et al., 2025). Large-scale data from India's NFHS-5 support this finding; children from the lowest wealth quintiles face a much higher risk of CIAF-defined growth failure than peers from the highest wealth quintile, where the adjusted odds ratio (AOR) falls significantly to 0.63.

Maternal education operates as an equally vital protective factor, serving as a reliable proxy for functional health literacy, nutritional knowledge, and child caregiving capacity. Recent research indicates that 52.9% of undernourished children were raised by mothers with limited formal schooling, showing a clear statistical link ($p = 0.001$) to adverse growth outcomes (Aini et al., 2026). Across multiple geographic contexts, children whose mothers had no formal schooling showed much higher odds of stunting and underweight status. Furthermore, a mother's access to health information—which is shaped by formal education and access to digital platforms—directly influences the quality of infant and young child feeding practices. Children who do not receive a diverse diet, defined as regularly consuming fewer than four distinct food groups, face more than twice the risk of becoming severely underweight (Jasani & Aghera, 2026).

Biological Factors, Maternal Anthropometry, and Morbidity

The biological transmission of nutritional status from mother to child is highly visible across the data, highlighting an ongoing intergenerational cycle of growth failure. Maternal physical measurements show strong, direct connections to specific body types in their children. For example, cross-sectional data from rural Southern Ethiopia revealed a clear, statistically significant positive correlation between maternal height and a child's height-for-age Z-score ($r = 0.2$, $p = 0.007$). This pattern directly links maternal stunting to long-term linear growth failure in their offspring (Negash et al., 2015). Similarly, maternal Body Mass Index (BMI) values correlated directly with a child's weight-for-height Z-score ($r = 0.16$, $p = 0.02$), showing that acute energy deficits in the mother serve as a direct predictor of childhood wasting (Negash et al., 2015).

Child-specific characteristics, such as age, birth weight, and recent illness, also shape short- and long-term nutritional development. Stunting rates change over time; they typically rise as children transition away from exclusive breastfeeding toward complementary foods, often peaking between 24 and 59 months of age (Fufa & Laloto, 2021). The dangerous feedback loop between recurrent childhood infections and poor nutritional status is clearly demonstrated by episodes of acute diarrhea and pneumonia. Children who recently suffered from diarrheal disease faced more than twice the risk of acute wasting (AOR = 2.11), driven by rapid nutrient malabsorption and metabolic stress (Jasani & Aghera, 2026).

How quickly families seek care during an illness also determines the severity of subsequent weight loss. Research in Padang City, Indonesia, revealed that 62.1% of mothers whose children contracted pneumonia demonstrated poor health-seeking behaviors, often delaying medical care beyond the crucial 24-hour mark. This delay was closely linked to low family income ($p = 0.017$) and limited maternal health education ($p < 0.0001$), which rapidly escalated the child's risk of severe acute malnutrition (Lodi et al., 2026). Conversely, proactive healthcare measures like full vaccination series offer powerful protection. Deconstructive analyses of Indian demographic datasets show that completing the full immunization schedule lowers the population attributable risk of stunting from 53% to 39%. It does this by preventing vaccine-preventable illnesses that cause chronic inflammation and muscle wasting (Khan et al., 2025).

Environmental, Spatial, and Climatic Vulnerabilities

Childhood malnutrition is increasingly understood as a problem driven by geographical inequality and macro-level environmental risks. Poor living environments with inadequate sanitation infrastructure and contaminated drinking water sources constantly expose children to enteric pathogens, sustaining high rates of undernutrition (Bhandari & Chhetri, 2013). Modern spatial autoregressive (SAR) models show that child undernutrition has a high degree of geographic dependency; high rates of malnutrition in one neighborhood

often spill over to increase the risk in adjacent communities. Spatial panel analyses from Ethiopia show that macro-environmental strains—particularly regional aridity and elevated daytime land surface temperatures—act as powerful external drivers of growth failure. Higher regional aridity correlated significantly with increased stunting ($p < 0.01$) and wasting rates, as shifting climate patterns disrupt local crop production and trigger severe household food shortages (Chari, 2026).

Comprehensive Data Synthesis of Child Malnutrition

	Sample Size (n)	Key Anthropometric Findings	Primary Determinants & Results
Aini et al. (2026), Indonesia	240	Overall undernutrition prevalence: 38.3%	Low maternal education, inadequate feeding practices, and poor environmental sanitation are significantly associated with undernutrition.
Anand & Bharadi (2024), India & Bangladesh	Macro-data	Secondary data review	Maternal education and female workforce participation significantly influence child health outcomes; disparities remain wide.
Barrera-López et al. (2023), Colombia	398	Prevalence not explicitly stated	Indigenous Wayúu children face severe growth deficits driven by interacting biological vulnerabilities and structural socio-economic deprivation.
Bhandari & Chhetri (2013), Nepal	~450	Wasting (<-2SD): 16%; Severe Wasting (<-3SD): 6%	Malnutrition is concentrated among Dalit and disadvantaged groups; heavily linked to low family affordability and day-labor reliance.
Bharati et al. (2024), India	168,942	Extracted from NFHS-5 data	Children from poor families and those with uneducated mothers have a significantly higher risk of stunting, underweight, and wasting.
Chakraborty et al. (2025), India	353	Extracted from Z-scores	Lack of clean cooking fuel (relying on wood instead of LPG), low dietary diversity, and poor maternal education are key risk factors.
Chari (2026), Ethiopia	690 clusters	Stunting: 33.6%; Underweight: 22.2%; Wasting: 8.5%	Macro-environmental factors—specifically regional aridity, high land surface temperatures, and low precipitation—directly drive anthropometric failure.
Deepthi et al. (2022), India	194	Z-score comparison	Rural residence, poor maternal education, and maternal occupation (homemaker) significantly lower the child's WAZ, HAZ, and WHZ scores.
Esmiralda et al. (2025), Indonesia	59	Malnutrition (stunting/underweight): 37%	Both family economic status ($p=0.003$) and maternal education ($p=0.006$) exhibited a profound statistical relationship with child malnutrition.
Fufa & Laloto (2021), Ethiopia	700	Overall undernutrition: 22.6%	Sharing a feeding plate, household food insecurity, and consuming fewer than 4 food

			groups severely elevate malnutrition risks.
Gebre et al. (2019), Ethiopia	840	Extracted from prior EDHS	Pastoral communities face malnutrition driven heavily by suboptimal exclusive breastfeeding, poor sanitation, and socio-demographic vulnerabilities.
Girimulyo II Study (2018), Indonesia	19	Qualitative/small sample	Low maternal knowledge and low household socioeconomic status are the primary drivers of abnormal nutritional status.
Gupta et al. (2021), India	1000	Pediatric OPD assessment	Undernutrition requires strict monitoring of age-specific dietary requirements, particularly for children presenting at tertiary care.
Hagag et al. (2022), Egypt	320	Extracted via crowding index	A low dietary diversity score (<4 food groups) and inadequate meal frequency are highly correlated with anemia and undernutrition.
Hussain et al. (2025), India	198,802	Assessed severe metrics	Residing in deprived 'aspirational' districts, poverty, and childhood anemia are the most robust predictors of severe stunting and wasting.
Jasani & Aghera (2026), India	~450	Extracted from MDI	Malnutrition is multidimensional; driven concurrently by a lack of maternal digital access, low dietary diversity, and recent diarrheal illness.
Khan, J. et al. (2025), India	Macro-data	Stunting declined from 53% to 39%	Full childhood immunization acts as a highly protective intervention, significantly reducing the population attributable risk of stunting.
Khan, S. et al. (2022), Pakistan	316	Underweight: 22.8%; Overweight: 26.9%; Obese: 14.9%	Unfiltered water use, poor hygiene, lack of supplementation, and low parental awareness of a balanced diet drive the double burden of malnutrition.
Krishna & Srijayanth (2022), India	319	Stunting: 51.7%; Underweight: 54.8%; Wasting: 31.0%	Tribal populations suffer an extremely high burden of all three anthropometric failures compared to the national average.
Lodi et al. (2026), Indonesia	87	Pneumonia focus	Poor health-seeking behavior during infectious episodes—driven by low family income—rapidly exacerbates acute weight loss and wasting.
Menalu et al. (2021), Ethiopia	385	Extracted via regression	Children lacking exclusive breastfeeding and those from illiterate mothers face up to a 2.5-fold higher risk of being severely underweight.
Namusoke & Atuhaire (2019),	50	Inpatient assessment	Absolute poverty, early

Uganda			pregnancy, poor agricultural practices, and the lack of land ownership are underlying determinants.
Negash et al. (2015), Ethiopia	197	Z-score modeling	Maternal anthropometry biological transfers: maternal height significantly predicts a child's HAZ, while maternal BMI predicts the child's WHZ.
NFHS-5 Analysis (2026), India	198,802	Stunting: 35.8%; Wasting: 18.5%; CIAF Failure: 51.6%	Over half the children experience anthropometric failure via the Composite Index, driven by wealth, sanitation, and maternal education.
Sarkar (2016), India	485	Stunting: 51.3%; Underweight: 41.4%; Wasting: 22.4%	Scheduled Tribe (ST) caste and households belonging to the lowest wealth quintiles present the highest risk of chronic linear growth failure.
Shah et al. (2016), Nepal	255	Stunting: 47%; Underweight: 36%; Wasting: 21%	The marginalized Musahar community exhibits extreme malnutrition; interestingly, female children showed a slightly lower risk of stunting than males.
Shreyashwi et al. (2013), India	133	Feeding practice focus	Despite high immunization and female literacy, defective complementary feeding timing and quality remained the leading cause of malnutrition.
Singh & Saraswat (2026), India	Meta-review	Tamil Nadu: 23% underweight, 25% stunted	Over 80% of India's malnutrition burden is concentrated in highly populated, lower-income regions with inadequate nutritional education programs.
Suratri et al. (2023), Indonesia	1,643	Extracted from RISKESDAS	Difficult access to healthcare facilities and mothers with junior high school education or lower are primary contributors to high stunting rates.

IV. Discussion

Synthesizing recent epidemiological and demographic data demonstrates that early childhood undernutrition—across its distinct presentations of stunting, wasting, and underweight status—remains an entrenched public health crisis across LMICs. The persistence of these conditions, often breaching critical WHO thresholds in vulnerable communities, exposes the limits of traditional, single-track nutritional strategies. Adopting the Composite Index of Anthropometric Failure (CIAF) represents an important analytical shift in how researchers evaluate this crisis. By identifying children who experience multiple overlapping growth deficits, the CIAF shows that conventional, standalone indices significantly understate the actual scale of community nutritional deprivation. When more than half of the under-five population in specific areas shows signs of growth failure, undernutrition shifts from an individual dietary issue to a systemic structural failure.

The Intergenerational and Socioeconomic Pathways of Undernutrition

The compiled evidence demonstrates that early childhood malnutrition serves as the physical manifestation of deep economic disadvantage and generational inequality. Persistent household poverty functions as the primary root cause, triggering a series of downstream growth barriers. Low family wealth limits access to diverse, calorie-dense diets, restricts the use of safe sanitation options, and forces families to rely on volatile, insecure livelihoods.

This economic insecurity is tightly linked to systemic disparities in female education. Throughout the literature, maternal educational attainment stands out as one of the most reliable and actionable protective factors against childhood growth failure. Educated mothers regularly exhibit higher health literacy, enabling them to improve early feeding routines, maintain better domestic hygiene, and navigate clinical healthcare systems more effectively. Crucially, these mothers tend to seek medical assistance much faster when a child develops acute infections like diarrhea or pneumonia (Lodi et al., 2026). This proactive response helps prevent the rapid weight loss and sudden wasting that typically accompany unchecked childhood illnesses.

Furthermore, the clear biological link between maternal body metrics and child growth underscores an intergenerational cycle that is difficult to disrupt. Mothers who experienced chronic undernutrition during their own childhoods, resulting in shorter adult stature, are biologically more likely to deliver low-birth-weight infants and raise stunted children (Negash et al., 2015). This biological transmission requires a shift in public health design; interventions cannot simply focus on the child after birth. To truly break the cycle of anthropometric failure, health and nutritional programming must prioritize adolescent girls and maternal well-being across the entire reproductive lifecycle.

The Synergistic Burden of Infection, Environment, and Climate

The direct causes of acute childhood malnutrition are closely linked to environmental pathogens and recurring childhood illnesses. The compiled datasets strongly support the classic malnutrition-infection cycle: children living near poor sanitation systems and contaminated water sources experience frequent gut infections. These repeated illnesses cause environmental enteropathy, severe malabsorption, and continuous immune activation, which quickly deplete a child's energy reserves. In these settings, systemic healthcare initiatives like comprehensive vaccination programs act as essential nutritional safeguards. As shown by recent data, complete immunization coverage noticeably lowers community stunting rates (Khan et al., 2025). By protecting young children from vaccine-preventable diseases, immunization prevents the metabolic stress and chronic inflammation that would otherwise divert vital energy away from bone growth and brain development.

Perhaps the most striking trend in recent research is the measurable impact of macro-environmental and climate variations on local childhood nutrition. Spatial regression tools demonstrate that climate change indicators—including rising regional aridity, higher daytime land surface temperatures, and unpredictable rainfall patterns—act as direct drivers of growth failure (Chari, 2026). In agricultural and pastoral economies, these environmental shifts lower crop yields, threaten livestock survival, and create severe household food shortages. The geographical clustering of malnutrition indicates that neighboring communities often share these environmental risks, creating distinct regional hotspots of severe undernutrition across entire geographic belts.

Policy Implications and Multisectoral Strategies

Addressing the multiple drivers of childhood undernutrition requires moving decisively away from narrow, vertical nutrition initiatives, such as distributing isolated micronutrient supplements, toward comprehensive, nutrition-sensitive frameworks. The empirical evidence shows a clear need for integrated policies that simultaneously target poverty reduction, female education, and the expansion of clean water, sanitation, and hygiene (WASH) systems. Additionally, closing the digital divide to improve a mother's access to health information and offering maternal mental health support represent crucial, modern updates to standard pediatric public health strategies.

In summary, childhood malnutrition is a multifaceted, structural challenge shaped by the intersection of biological inheritance, economic disadvantage, infectious disease, and accelerating environmental shifts. Speeding up progress toward the Sustainable Development Goals (SDGs) and reducing the high rates of stunting and wasting will require deploying geographically targeted, integrated strategies that build both household economic security and community environmental resilience.

V. Conclusion

Childhood malnutrition remains a pressing public health challenge throughout low- and middle-income nations. This synthesized body of evidence proves that undernutrition—whether presenting as stunting, wasting, or underweight status—is not simply the result of limited food intake. Instead, it represents the final product of intersecting socioeconomic, maternal, and environmental pressures. Household poverty and limited maternal education consistently stand out as the most powerful drivers, sustaining an intergenerational cycle of deprivation. At the same time, the combined impact of broken sanitation infrastructure, frequent childhood infections, and shifting climate risks heavily worsens the nutritional burden borne by marginalized communities.

To effectively address this issue, modern public health strategies must evolve. Single-issue nutritional programs are no longer sufficient to break this cycle. Policymakers must focus on wide-ranging, multi-sectoral frameworks that merge direct nutritional support with broad, nutrition-sensitive policies. Empowering women through education, reducing economic inequality, and constructing climate-resilient sanitation networks are vital

steps forward. Ultimately, building sustainable nutritional equity is essential for securing healthy child development and accelerating global progress toward the Sustainable Development Goals.

VI. Recommendations

- **Prioritize Maternal Empowerment:** Launch targeted educational initiatives designed to improve functional health literacy among women, focusing specifically on the benefits of exclusive breastfeeding, dietary diversity, and the timely introduction of nutrient-dense complementary foods.
- **Integrate Nutrition with Poverty Alleviation:** Link community-level nutritional support directly with economic development programs to improve household food security and boost a family's capacity to purchase high-quality, diverse whole foods.
- **Strengthen Local Healthcare Infrastructure:** Upgrade local clinical networks to provide equitable access to essential preventative services, including systematic growth tracking, comprehensive immunization coverage, and robust pre- and post-natal maternal care.
- **Expand WASH Infrastructure:** Implement structural upgrades in water, sanitation, and hygiene systems to reduce a child's exposure to environmental pathogens, thereby breaking the cycle of recurrent infections that drive acute wasting and chronic stunting.
- **Target Vulnerable Populations:** Design specialized, culturally appropriate interventions for highly exposed groups—such as rural, tribal, and low-income communities—to address the structural inequalities that hamper long-term childhood development.

References

[1]. Aini, I. N., Fitriani, I., & Rahayu, T. B. (2026). Analysis of factors influencing nutritional status of children under five year old. Journal of Public Health Indonesian, 2(5), 35–43. https://doi.org/10.62872/k0nw0m48

[2]. Barrera-López, P., Mora-Salamanca, A. F., Rico, K., & Barrera-Ayala, S. (2026). Nutritional follow-up in indigenous children under five years in Colombia. Children, 13, 2026.

[3]. Bhandari, T. R., & Chhetri, M. (2013). Nutritional status of under five year children and factors associated in Kapilvastu District, Nepal. Journal of Nutritional Health & Food Science, 1(1), 6.

[4]. Bharati, S., Pal, M., Hossain, M. G., & Bharati, P. (2024). Study on stunting, underweight and wasting among under-five children in India: Changes with respect to age. International Journal of Statistical Sciences, 24(2), 137–148. https://doi.org/10.3329/ijss.v24i20.78219

[5]. Chakraborty, M., Basu, S., & Jerath, S. G. (2025). Prevalence and determinants of undernutrition in underfive children in urban slums of Tripura, India. Indian Journal of Community Medicine.

[6]. Chari, A. (2026). Spatial inequality in under-five children undernutrition: Evidence from Ethiopia. Journal of Tropical Medicine, 2026, 7022986. https://doi.org/10.1155/jotm/7022986

[7]. Deepthi, C. S., Reddy, E. M., Chaudhuri, S., & Rizwana, S. (2022). Nutritional status of pre-school children attending Anganwadi centres in Chittoor, Andhra Pradesh, India. National Journal of Community Medicine, 13(11), 828–834. https://doi.org/10.55489/njcm.131120222415

[8]. Esmiralda, Nursyahraeni, Hasnidar, & Sulfianti. (2025). Socioeconomic and educational determinants of nutritional status among children under five. Jurnal Ilmiah Kesehatan Sandi Husada, 14(2), 368–376. https://doi.org/10.35816/jiskh.v14i2.1325

[9]. Fufa, D. A., & Laloto, T. D. (2021). Factors associated with undernutrition among children aged between 6–36 months in Semien Bench district, Ethiopia. Heliyon, 7(5), e07072. https://doi.org/10.1016/j.heliyon.2021.e07072

[10]. Gebre, A., Reddy, P. S., Mulugeta, A., Sedik, Y., & Kahssay, M. (2019). Prevalence of malnutrition and associated factors among under-five children in pastoral communities of Afar Regional State, Northeast Ethiopia: A community-based cross-sectional study. Journal of Nutrition and Metabolism, 2019, 9187609. https://doi.org/10.1155/2019/9187609

[11]. Gupta, M., Puri, A., & Jindal, R. (2021). Assessment of nutritional status of under five children attending outpatient department at a tertiary care hospital in North India. International Journal of Paediatrics and Geriatrics, 4(1), 4–6. https://doi.org/10.33545/26643685.2021.v4.i1a.115

[12]. Hagag, S., Nasser, S., Elden, N. M. K., & Taha, A. M. (2022). Prevalence and determinants of malnutrition among under-five children in a rural village in Giza Governorate. Open Access Macedonian Journal of Medical Sciences, 10(E), 1125–1131. https://doi.org/10.3889/oamjms.2022.9576

[13]. Hussain, D., Barnwal, J., & Singh, S. (2025). Prevalence and determinants of severe malnutrition among children under five: A comparative analysis of aspirational and non-aspirational districts in India. BMC Public Health, 25, 4136.

[14]. Jasani, K., & Aghera, N. (2026). Multidimensional determinants of malnutrition among under five children in western India. Discover Public Health, 23, 853. https://doi.org/10.1186/s12982-026-02231-3

[15]. Khan, J., Mohanty, S. K., & Paul, P. (2025). Immunization attributable burden of stunting among under-five children in India: A decomposition analysis. BMC Pediatrics, 25, 851. https://doi.org/10.1186/s12887-025-06139-w

[16]. Khan, S., Nazir, A., Shehzad, A., Abid, J., Qaiser, A., & Khan, T. M. (2022). Malnutrition and its associated factors among children in Murree, Rawalpindi. International Journal of Community Medicine and Public Health, 9(8), 3095–3100. https://doi.org/10.18203/2394-6040.ijcmph20222006

[17]. Krishna, A. S. R., & Srijayanth, P. (2022). Prevalence of malnutrition in under five age group of the tribals in Wayanad district of Kerala, South India: A community based cross-sectional study. International Journal of Community Medicine and Public Health, 9(10), 3811–3815. https://doi.org/10.18203/2394-6040.ijcmph20222576

[18]. Lodi, S. A., Putri, A. S. E., & Masnarivan, Y. (2026). Factors associated with health seeking behaviour of pneumonia children under five in Lubuk Begalung Health Center 2024. Indonesian Journal of Health Sciences Research and Development, 8(1), 38–51. https://doi.org/10.36566/ijhsrd/Vol8.Iss1/354

[19]. Mallikarjun, A., & Bharadi, H. H. (2024). Immunization and nutritional status of India and Bangladesh under-five children. International Journal of Advance and Applied Research, 5(20).

[20]. Menalu, M. M., Bayleyegn, A. D., Tizazu, M. A., & Amare, N. S. (2021). Assessment of prevalence and factors associated with malnutrition among under-five children in Debre Berhan town, Ethiopia. International Journal of General Medicine, 14, 1683–1697.
[21]. Namusoke, M., & Atuhaire, S. (2019). Factors contributing to malnutrition among under-fives: A survey of Mubende Regional Referral Hospital, Uganda. Journal of Health Science Studies, 1(2).
[22]. Negash, C., Whiting, S. J., Henry, C. J., Belachew, T., & Hailemariam, T. G. (2015). Association between maternal and child nutritional status in Hula, rural Southern Ethiopia: A cross sectional study. PLoS ONE, 10(11), e0142301. https://doi.org/10.1371/journal.pone.0142301
[23]. Sarkar, S. (2016). Cross-sectional study of child malnutrition and associated risk factors among children aged under five in West Bengal, India. International Journal of Population Studies, 2(1), 89–102. http://dx.doi.org/10.18063/IJPS.2016.01.003
[24]. Sathyanath, S. M., Rashmi, & Kiran, N. U. (2013). Prevalence and risk factors of under nutrition among under five children in a rural community. Nitte University Journal of Health Science, 3(4), 82–86.
[25]. Shah, S. K., Shetty, S. K., Shingh, D. R., Mathias, J., Upadhyay, A., & Pandit, R. (2016). Prevalence of undernutrition among Musahar children aged between 12 to 59 months in urban Siraha District, Nepal. MOJ Public Health, 4(5), 00093. https://doi.org/10.15406/mojph.2016.04.00093
[26]. Singh, P., & Saraswat, S. (2026). Epidemiology of malnutrition among under-five children in selected middle-belt states of India: a review. International Journal of Community Medicine and Public Health, 13(3), 1569–1574. https://doi.org/10.18203/2394-6040.ijcmph20260722
[27]. Sk, R., & Banu, N. (2026). Malnutrition among Indian children under 5, NFHS-5, 2019-21: Determinants of stunting, wasting, and underweight. Health Care Science.
[28]. Suratri, M. A. L., Putro, G., Rachmat, B., Nurhayati, Ristrini, Pracoyo, N. E., Yulianto, A., Suryatma, A., Samsudin, M., & Raharni. (2023). Risk factors for stunting among children under five years in the province of East Nusa Tenggara (NTT), Indonesia. International Journal of Environmental Research and Public Health, 20(2), 1640. https://doi.org/10.3390/ijerph20021640
[29]. Wahyuntari, E., & Dewi, F. R. (2018). Nutritional status of children under five in Public Health Care Girimulyo II. Universitas 'Aisyiyah Yogyakarta.