

The Silent Crisis: Malnutrition in Uttarakhand's Children

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ABSTRACT

Children comprise a major part of the population in many countries and are considered the future. A child is structured and designed right from birth by parents, school, society and environment into what they become. So, the foundation laid down in the young age plays an important role in the overall development of a child. A child's development is influenced by various factors and one of the major issues is nutrition. Childhood nutrition is very important, and one cannot ignore the fact of adequate and appropriate nutrition for a child especially during the growing up days. Malnutrition is a major menace in many developing and underdeveloped countries, which places the children at risk to develop various other ailments. World Health Organization and Government of India have been trying to eliminate the peril of malnutrition by implementing various programs at various levels. In spite of the massive interventional programs at all levels the mortality rate of children dying because of malnutrition is still at alarming levels. The need to educate the masses at grass root levels is important and efficient screening is the need of the hour. For successfully eradicating malnutrition from our country, we all need to join in hands and pledge to make sure that our children are not deprived of proper nutrition, especially during the preschool age.

Keywords: Childhood Nutrition, Malnutrition, Child Development, Preschool Health, Public Health Intervention

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INTRODUCTION

Nutrition serves as essential building blocks during prime years of child's life. It not only boosts brain development but also serves as a strong foundation for healthy growth and a strong immune system¹, also prevents overweight and associated non-communicable diseases.² Though most of the countries have adopted infant and young child nutrition (ICYN) policies, many gaps have been identified as per recent assessments.³ Globally, about half of the children below five years of age are found anemic, and 144 million are stunted.⁴

Child malnutrition is one of the measures of health status that the World Health Organization (WHO) recommends for equity in health.⁵ The term malnutrition generally refers to both undernutrition and overnutrition. Mechanistically, malnutrition is defined as "a state wherein adequate nutrients are not delivered to the cells to provide the substrate for optimal functioning."⁶ According to WHO, malnutrition refers to deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients.⁴ The term malnutrition addresses three broad groups of conditions: undernutrition, stunting, and underweight.⁷ Under-five children constitute the most vulnerable segment of any community.⁸ Their nutritional status is a sensitive indicator of a child's health.⁹

India has indeed experienced significant economic growth over the past few decades but is still fighting with the highest rate of food disparity. As per the Global Hunger Index 2024, India ranked 105th out of 127 countries. The hunger level of India calculated was serious, with scores of 27.3. The four components were an undernourished population (13.7%), under-five stunted children (35.5%), 18.7% children wasted, and under-five mortality of 2.7%.¹⁰

Uttarakhand, also called 'Devbhoomi,' i.e., Land of Gods, is well known for its natural and scenic beauty. It is also the country's 20th most populous state.¹¹ The hilly state of Uttarakhand is in the northwestern part of the country. It has varied topography and is divided into two regions, i.e., Garhwal and Kumaon.¹² It consists of 13 districts and 95 blocks, which are spread over three distinct zones as per altitude. Various studies have reported that due to differences in the altitudes, children and people suffer because of the inaccessibility and non-availability of health care facilities.¹³⁻¹⁶ Various studies have been undertaken to project the state of nutrition in children. The data presented below shows a comparative picture of malnutrition among children in India and the state of Uttarakhand. It also highlights factors contributing to malnutrition in children as per geographical terrain.

Status of Malnutrition in India & the State: The prevalence of malnutrition among under-five children in India, as per the NFHS-5 report, was 35.5%

stunted, 19.3% wasted, 32.1% underweight, and 3% overweight.¹⁷

In the Uttarakhand hills, the situation has slightly improved. As per NFHS-5 data, the prevalence of stunting found was 36%, which has reduced from 38% (NFHS 4), wasting 19% from 21%, and 32% of children were found underweight compared to 36%.¹⁸

As per another survey conducted in Uttarakhand, 8,856 children were identified as malnourished in the year 2020-21, and 1,129 were identified as extremely malnourished. There was an extreme hike to 2,983 till December 2024. As per reports of IFPRI (International Food Policy Research Institute), Haridwar district was found to have the highest burden of stunted children, followed by Udham Singh Nagar, Dehradun, Nainital, and Garhwal.^{13,14}

As per reports published, the state government has spent about 430 crores to battle malnutrition by providing nutritionally rich food to children, but there has been a 164% rise in severe malnutrition cases in Uttarakhand in five years.¹⁹

Contributing Factors for Malnutrition in State:

Growth during childhood is widely used as a marker to assess adequate health, nutrition, and development of children. It is well documented that chronic undernutrition is associated with serious health impairment later in life, which has a significant impact on quality of life.²⁰ Health and physical consequences of prolonged states of malnourishment among children are delay in their physical growth and motor development; lower intellectual quotient (IQ), greater behavioral problems, and deficient social skills; and susceptibility to contracting diseases.²¹ Therefore, the physical, mental, social, and nutritional status of children, as well as other characteristics related to malnutrition, should be evaluated periodically to monitor malnutrition, thereby enabling appropriate measures that can prevent it to be implemented.

Malnutrition is multifactorial in nature.²² Though multifactorial in nature, there are certain factors that are labelled to every geographical area. Very few studies have been undertaken in the state specifically highlighting the causes of or contributions to the poor nutritional status of children below five years. The factors reported to be commonly associated with malnutrition in children below five years are gender, mother's age at birth, number of living children, birth order, previous birth interval, size at birth, age of child, and mother's BMI. Socioeconomic factors place of residence, mother's education and occupation, type of housing, religion, household possessions, mass media exposure; dietary factors breastfeeding status and Environmental factors: household, drinking water source, type of toilet facility, health care, immunization status, place of delivery, complication during delivery, antenatal care, TT injection, vaccination coverage, and vitamin A supplementation.²³⁻²⁶

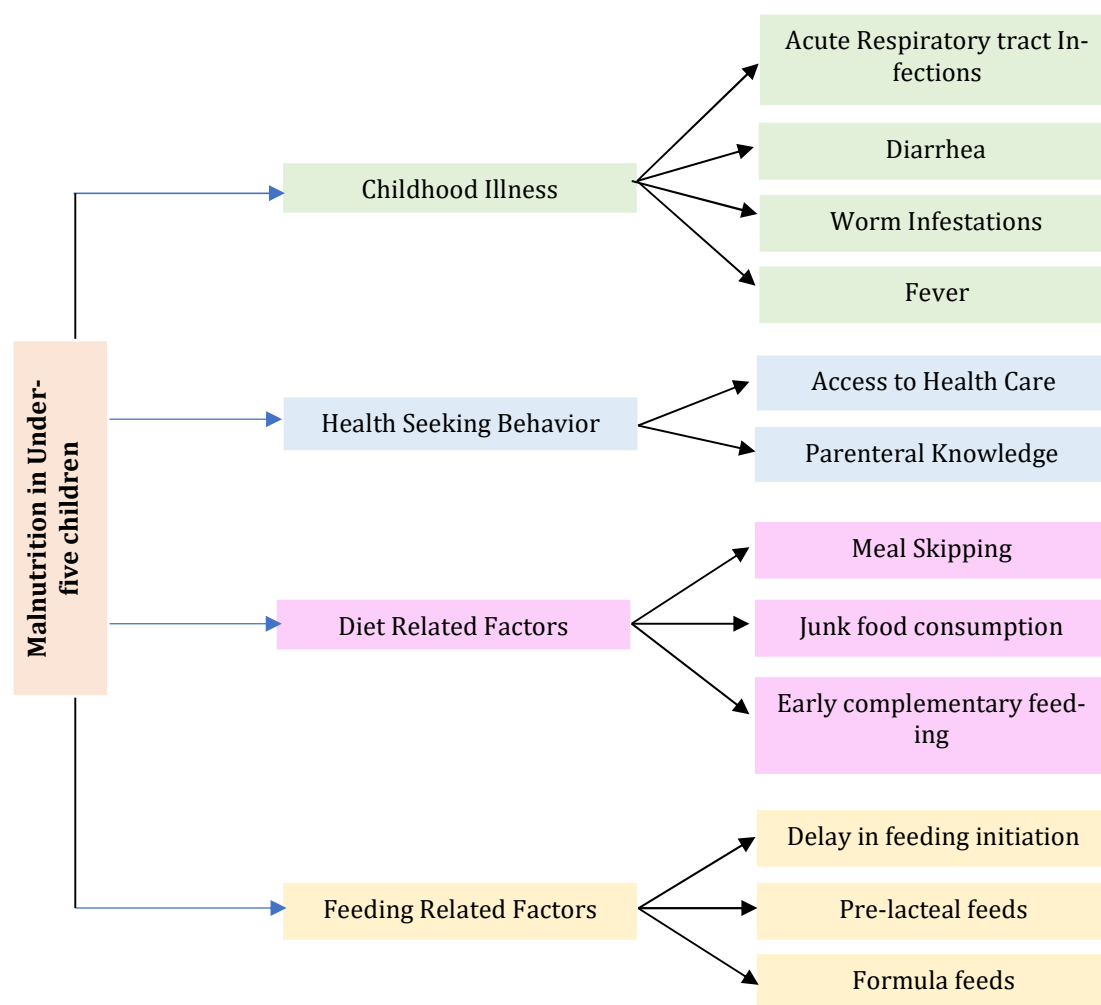


Figure 1: Key-elements associated with malnutrition in Uttarakhand

It has been reported that nutritional status was found poorer in females than in males in Uttarakhand.²⁷⁻²⁹ Another significant cause was unplanned pregnancy, anemia during pregnancy, poor hospital visits, and irregular consumption of iron and folic acid supplements. Adding to it was the substitution of breast milk with formula feeds, also called pre-lacteal feeds, adding to the delay in the initiation of breast milk.^{30,31} Using bottles for feeding, illiteracy of mothers, low socioeconomic status, inappropriate practices, myths, and reduced milk production are some causes.^{27,31}

Illnesses like ARI, fever (at least three episodes), and diarrhea in one year are other contributors to malnutrition in children under five. It predisposes them to a 1.3 times higher risk of developing malnutrition. Worm infestations and not deworming periodically can also add to wasting and stunting in children under five.^{27,32} Household indicators like cooking fuel, use of iodized salt, toilet facility, and type of house (like kutcha or pucca) are other significant related factors to stunting and undernutrition.^{28,33} These factors have been further categorized and described in Fig.1.

FUTURE RECOMMENDATIONS

Although great efforts have been made by the Government of India within the past few years to tackle the problem and burden of malnutrition, it is still present in the country and remains a major public health issue.^{33,34} These factors may have different effects on the prevalence of under nutrition in varying socio-geographical areas depending on their relative presence.²⁵ Understanding of factors affecting nutritional status in toddlers, moreover, in local context shall contribute to more focused strategies for tackling it. Factors that can contribute apart from those mentioned above can be: cultural influence and practices adopted by mothers due to family influence or pressure, utilization of food received from Anganwadi, use of pre-lacteal feeds like honey, ginger water, ghutti (locally available or prepared), premature initiation of foods also called 'annaprasan' done at four months, climatic condition, myths regarding food given at Anganwadi and immunizations done as per health card received from centre.^{23,24,26}

To improve nutritional status of children and get rid of malnutrition, a comprehensive approach needs to

be adopted by the government. There needs to be collaboration at all levels of government, NGOs and health workers with community representatives' participation.^{27,32} The ICDS functioning at higher altitudes needs to be strengthened in Uttarakhand. Training of Anganwadi, ASHA workers and newly appointed CHOs (community health officers) is mandatory at regular intervals. There needs to be more of outcome-based researches in order to develop/design a comprehensive package for combating malnutrition in the state.

CONCLUSION

All these factors must be addressed through awareness and intervention programs, as the shortage of healthcare workers in health centers necessitates training and involving mothers in the care of their children, thereby enhancing the nutritional status of children under five. Nutrition during the early years of a child's life is crucial for their neurological development and is influenced by cultural, social, economic, and community food practices. Primary healthcare services and their providers are essential in addressing this issue at the grassroots level. Therefore, it is imperative to establish and monitor interdisciplinary coordination among healthcare teams to ensure the success of government-initiated projects aimed at combating this problem. This approach will assist our nation in achieving its objective of a malnutrition-free India.

REFERENCES

- Children Under Five [Internet]. Nutrition International. [updated 2024; cited 2025 March 2]. Available from: <https://www.nutritionintl.org/our-work/who-we-help/children-under-five/>
- Balasundaram P, Krishna S. Obesity Effects on Child Health. [Updated 2023 Apr 10]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK570613/>
- Wali N, Agho KE, Renzaho AMN. Mapping of nutrition policies and programs in South Asia towards achieving the Global Nutrition targets. *Arch Public Health*. 2023 Sep 19;81(1):171. Doi: <https://doi.org/10.1186/s13690-023-01186-0>
- World Health Organization. Malnutrition [Internet]. World Health Organization. 2024. Available from: <https://www.who.int/news-room/fact-sheets/detail/malnutrition>.
- Govender I, Rangiah S, Kaswa R, Nzaumvila D. Malnutrition in children under the age of 5 years in a primary health care setting. *S Afr Fam Pract* (2004). 2021 Sep 7;63(1):e1-e6. doi: 10.4102/safp.v63i1.5337. Erratum in: *S Afr Fam Pract* (2004). 2021 Dec 14;63(1):5416. Doi: <https://doi.org/10.4102/safp.v63i1.5416> PMID: 34677078; PMCID: PMC8517826
- Mishra C. Malnutrition-free India: Dream or reality. *Indian Journal of Public Health*. 2017;61(3):155. Doi: https://doi.org/10.4103/ijph.IJPH_217_17 PMID: 28928297
- Scrinis G. Reframing malnutrition in all its forms: A critique of the tripartite classification of malnutrition. *Global Food Security*. 2020 Sep;26:100396. Doi: <https://doi.org/10.1016/j.gfs.2020.100396>
- Agarwal AK, Sarswat S, Mahore R, Saraswat S, Kuity P, Tripathi A. Malnutrition prevailing trend study among under five children of urban slum area of Gwalior city Madhya Pradesh. *International Journal of Community Medicine And Public Health*. 2021 Jan 27;8(2):623-629. Doi: <https://doi.org/10.18203/2394-6040.ijcmph20210211>
- Das SR, Prakash J, Krishna C, Iyengar K, Venkatesh P, Rajesh SS. Assessment of Nutritional Status of Children between 6 Months and 6 Years of Age in Anganwadi Centers of an Urban Area in Tumkur, Karnataka, India. *Indian J Community Med*. 2020 Oct-Dec;45(4):483-486. Doi: https://doi.org/10.4103/ijcm.IJCM_523_19 PMID: 33623206 PMCID: PMC7877415
- Global Hunger Index. India [Internet]. Global Hunger Index - peer-reviewed annual publication designed to comprehensively measure and track hunger at the global, regional, and country levels. 2024. Available from: <https://www.globalhungerindex.org/india.html>
- Haldar P, Viswanath L, Srivastava AK. Nutritional Services in Hills of Uttarakhand- An Overview. *Natl J Community Med* 2023;14(8):540-543. Doi: <https://doi.org/10.55489/njcm.140820233053>
- Prem Lal Joshi, Nag S. Some Perspectives on Vibrant Economy of Uttarakhand. *Scholars journal of economics, business and management/Scholars journal of economics, business and management*. 2024 Feb 7;11(02):34-51. Doi: <https://doi.org/10.36347/sjebm.2024.v11i02.001>
- Rahman F, Mohammad Shakil Akther, Rahman A. A study on integration of health and education facilities in Rural Access Index (RAI). *Transportation research interdisciplinary perspectives*. 2023 Nov 1; 22:100930-0. Doi: <https://doi.org/10.1016/j.trip.2023.100930>
- Dotse-Gborgbortsi W, Nilsen K, Ofosu A, Matthews Z, Tejedor-Garavito N, Wright J, et al. Distance is "a big problem": a geographic analysis of reported and modelled proximity to maternal health services in Ghana. *BMC Pregnancy and Childbirth*. 2022 Aug 31;22:672. Doi: <https://doi.org/10.1186/s12884-022-04998-0> PMID: 36045351 PMCID: PMC9429654
- UNICEF. Children with Disabilities [Internet]. 2022. Available from: https://www.unicef.org/sites/default/files/2022-10/GIP02115_UNICEF_Children-with-Disabilities-Factsheet-final%20-%20accessible.pdf
- Kumar D, Singh T, Vaiyam P, Banjare P, Saini S. Identifying potential community barriers for accessing health care services context to health for all in rural-tribal geographical setting in India: A systematic review. *The Journal of Community Health Management [Internet]*. 2022;9(4):169-77. Doi: <https://doi.org/10.18231/j.jchm.2022.033>
- Government of India, Ministry of Women & Child Development [Internet]. 2023 [cited 2025 Jan 18]. Available from: <https://sansad.in/getFile/loksabhaquestions/annex/1711/AU4028.pdf?source=pqals>
- Rao N, Bala M, Ranganathan N, Anand U, Dhingra S, Costa JC, Weber AM. Trends in the prevalence and social determinants of stunting in India, 2005-2021: findings from three rounds of the National Family Health Survey. *BMJ Nutr Prev Health*. 2023 Dec 6;6(2):357-366. Doi: <https://doi.org/10.1136/bmjnp-2023-000648> PMID: 38618541 PMCID: PMC11009545
- Service SN. Over 164% rise in severe malnutrition cases in Uttarakhand in five years [Internet]. *The Statesman*. thestatesman; 2025 [cited 2025 May 2]. Available from: <https://www.thestatesman.com/india/over-164-rise-in-severe-malnutrition-cases-in-uttarakhand-in-five-years-1503404070.html>
- De Sanctis V, Soliman A, Alaaraj N, Ahmed S, Alyafei F, Hamed N. Early and Long-term Consequences of Nutritional Stunting: From Childhood to Adulthood. *Acta Biomed*. 2021 Feb 16; 92(1):e2021168. Doi: <https://doi.org/10.23750/abm.v92i1.11346> PMID: 33682846; PMCID: PMC7975963.

21. Simwanza NR, Kalungwe M, Karonga T, Mtambo CMM, Ekpenyong MS, Nyashanu M. Exploring the risk factors of child malnutrition in Sub-Sahara Africa: A scoping review. *Nutr Health*. 2023 Mar;29(1):61-69. Doi: <https://doi.org/10.1177/02601060221090699> PMid:35369816
22. Tariq I, Khan JI, Malik MA. Decomposing acute malnutrition by educational inequality of mother's among under five children in Jammu and Kashmir. *Scientific Reports* [Internet]. 2023; 13(1):10493. Doi: <https://doi.org/10.1038/s41598-023-37587-y> PMid:37380705 PMCID:PMC10307840
23. Haldar P, Viswanath L, Srivastava AK, Sati HC. Nutritional Status and its Determinants in Toddlers: A case study of Hilly region of Uttarakhand. *Indian Journal of Community Health*. 2022;34(2):220-6. Doi: <https://doi.org/10.47203/IJCH.2022.v34i02.015>
24. Haldar P, Viswanath L, Srivastava AK. Mothers' Perception regarding Malnutrition in their Children. *Asian Pacific Journal of Health Sciences*. 2022;9(4): 87-90. Doi: <https://doi.org/10.21276/apjhs.2022.9.4.18>
25. Ministry of Women and Child Development (MWCD) (2023), Steady improvement in indicators for malnutrition, Government of India.
26. Haldar P, Viswanath L, Srivastava AK. Early Childhood Malnourishment and its Associated Factors -Uttarakhand. *Indian Journal of Forensic Medicine & Toxicology*. 2022; 16(2): 122-28. Doi: <https://doi.org/10.37506/ijfmt.v16i2.17935>
27. Jasrotia A, Saxena V, Bahrupi Y. Prevalence of DBM among Young Children. *Journal of Clinical and Diagnostic Research*. 2023; 17(8): SC01-SC05.
28. Singh M, Rehan A, Kishore S, Jain B, Reddy NK, Kumar D, et al. A study to assess undernutrition and its sociodemographic correlates in under-five children in urban and rural areas of Rishikesh, Uttarakhand. *Journal of Family Medicine and Primary Care*. 2020;9(9):4980. Doi: https://doi.org/10.4103/jfmprc.jfmprc_663_20 PMid:33209832 PMCID:PMC7652190
29. Saxena V, Kumar P. Complementary feeding practices in rural community: A study from block Doiwala district Dehradun. *Indian J Basic Appl Med Res*. 2014;3:358-63.
30. Saxena V, Verma N, Mishra A, Jain B. Assessment of Infant and Young Child Feeding (IYCF) practices in rural areas of Dehradun, Uttarakhand. *J Family Med Prim Care*. 2022 Jul; 11(7): 3740-3745. Doi: https://doi.org/10.4103/jfmprc.jfmprc_2502_21 PMid:36387640 PMCID:PMC9648332
31. Rehan A, Kishore S, Singh M, Bahrupi Y, Aggarwal P, Jain B. Undernutrition and associated common comorbidities among 6-59 months old children. *Indian J Comm Health*. 2020;32(2):461-463. Doi: <https://doi.org/10.47203/IJCH.2020.v32i02.030>
32. Chaudhuri S, K. Yashaswini, AY Nirupama, Varun Agiwal. Examining the prevalence and patterns of malnutrition among children aged 0-3 in India: Comparative insights from NFHS-1 to NFHS-5. *Clinical Epidemiology and Global Health*. 2023 Nov 1;24:101450. Doi: <https://doi.org/10.1016/j.cegh.2023.101450>
33. Mishra C. Malnutrition-free India: Dream or reality. *Indian Journal of Public Health*. 2017;61(3):155-162. Doi: https://doi.org/10.4103/ijph.IJPH_217_17 PMid:28928297
34. Swaminathan S, Hemalatha R, Pandey A, Kassebaum NJ, Laxmaiah A, Longvah T, et al. The burden of child and maternal malnutrition and trends in its indicators in the states of India: the Global Burden of Disease Study 1990-2017. *The Lancet Child & Adolescent Health*. 2019 Dec;3(12):855-70. Doi: [https://doi.org/10.1016/S2352-4642\(19\)30273-1](https://doi.org/10.1016/S2352-4642(19)30273-1) PMid:31542357