ORIGINAL ARTICLE

Nutritional Status of Children Under Five Years in a Tertiary Care Center: A Cross-Sectional Study

Bharat Chand[1], Drishti Poudel[1], Anil Shrestha[2], Pushpa Chand Thakuri[3], Madhu Thapa[4], Anita Shahi[5]

[1] Department of Pediatrics, Nepal Armed Police Force Hospital, Kathmandu, Nepal
[2] Department of Public Health, Nepal Armed Police Force Hospital, Kathmandu, Nepal
[3] Department of Child Health Nursing, Maharajgunj Nursing Campus, TUIOM, Maharajgunj, Kathmandu, Nepal
[4] Department of Nutrition, Nepal Armed Police Force Hospital, Kathmandu, Nepal
[5] Department of Nutrition, Nepal Mediciti Hospital, Lalitpur, Nepal

Corresponding Author:
Dr. Bharat Chand
Department of Pediatrics
Nepal Armed Police Force Hospital
Balambu, Kathmandu, Nepal.
Email: chandbharat@hotmail.com

Article History:
Received date: July 17, 2025
Revised date: August 03 2025
Accepted date: August 07, 2025
Published date: August 28, 2025

Online Access
DOI:10.64772/mjapfn117

Abstract

Introduction: Malnutrition remains a leading cause of under-five mortality globally and in Nepal, with significant rates of stunting, wasting, and underweight. Despite national progress, child nutrition challenges persist, especially among vulnerable groups in hospital settings. This study assesses the nutritional status of children under five attending a tertiary care center in Nepal.

Methods: This descriptive cross-sectional hospital-based study was conducted among 260 under-five children attending the Pediatric Department of Nepal APF Hospital, from February to June 2025, after ethical approval (Reference number: NAPFH-031/2024). Data were collected through face-to-face interviews with caregivers and anthropometric measurements. Nutritional status was assessed using WHO standards. Descriptive statistics, chi-square test, and logistic regression were used for analysis.

Results: Among 260 children under five years, the overall prevalence of malnutrition was 30%, including 10% stunted, 11.20% wasted, and 15.40% underweight. Malnutrition was significantly associated with the child's age ($p<0.001$), with children below 24 months more likely to be malnourished. Father's education level also showed a significant association ($p = 0.005$), where lower paternal education correlated with higher malnutrition rates. No significant associations were observed between maternal, environmental, or child-rearing characteristics and the outcome.

Conclusions: The present study found a notable burden of malnutrition among under-five children visiting a tertiary care center in Kathmandu with younger age and father's education significantly associated with malnutrition. Targeted early-life nutritional interventions and improved parental education can help to improve the nutritional status of under five children.

Keywords: *malnutrition; stunting; underweight; wasting.*

How to cite (Vancouver Style)
Chand B,Poudel D, Shrestha A, Thakuri PC, Thapa M, Shahi A. Nutritional Status of Children Under Five Years in A Tertiary Care Center: A Cross-Sectional Study. Med J APF Nepal. 2025;1(1):23-31.

Introduction

Malnutrition is a major cause of under-five mortality.[1] Malnutrition is a pathological condition caused by a relative or absolute excess or deficiency of one or more necessary nutrients[2] and includes undernutrition (wasting, stunting and underweight), micronutrient deficiencies, overweight/obesity and resulting diet-related non communicable diseases.[3]

Globally in 2022, 149 million children under five were stunted, 45 million wasted, and 37 million were overweight or living with obesity. Nearly half of under-five deaths, mainly in low and middle-income countries like Nepal are linked to undernutrition.[3] In Nepal, NDHS 2022 reported 25% stunting, 8% wasting, and 19% underweight among under-five children.[4] Despite some progress, like the prevalence of stunting declined by one third between 2000 and 2019, nutritional status of children in Nepal is not progressing as expected.[5] Socio demographic factors, feeding practices, and hygiene practices are linked with the nutritional status of children.[1,5-7]

Children attending tertiary care facilities are a unique group, frequently impacted by acute or chronic illnesses and a range of socioeconomic issues that can increase their risk of malnutrition unlike the general population. Sickness in hospitalized children can directly affect their nutrient intake, absorption, and metabolism, leading to worse nutritional outcomes than the general population. Although national surveys offer useful information at the population level, these statistics may not fully capture the nutritional severity and determinants of hospitalized children. Limited studies have been conducted in hospitalized children in tertiary care centers in Nepal.[1,9] Hence, to minimize the gap of nutritional status in the general population and hospitalized under five children, hospital-based study is crucial.

This study aims to assess the nutritional status of children under five years attending a tertiary care center in Nepal, focusing on the prevalence of stunting, wasting, and underweight.

Methods

A Descriptive cross-sectional study was conducted in 260 children under five year's age attending Pediatric Department of a Nepal APF Hospital. The samples were selected purposively. Informed written consent was obtained from the caretakers of the children. Those who denied participation in the study, with emergency condition, physical deformity, chronic illness, malignancies and any surgical procedures hindering height measurement and not available at during the period of the study were excluded. The response rate was 100%. Data were collected for five months from February 2025 to June 2025. Face to face interview of parents/caregivers of children was done by Pediatrician using pretests structured questionnaire and anthropometric measurements were taken by trained health care personnel. Length of infant was measured by standard Infantometer and height of children was measured with a standard Stadiometer and recorded in centimeters. Weight was measured with a portable digital weighing scale (SAMSO) and recorded in kilograms. MUAC was measured with a Shakir tape at the midpoint between the tips of the shoulder and elbow of the left upper arm.

To ensure data quality, equipment was calibrated daily, and all measurements were taken twice by the same observer, with a third measurement taken if discrepancies exceeded 0.5 cm or 0.1 kg.

Nutritional Status was classified as per WHO standard:

Stunting (HAZ): Height-for-age Z-score < -2 SD

Wasting (WHZ): Weight-for-height Z-score < -2 SD

Underweight (WAZ): Weight-for-age Z-score < -2 SD

MUAC: Moderate acute malnutrition: MUAC 11.5–12.4 cm; Severe acute malnutrition: MUAC <11.5 cm

Ethical approval was taken from IRC of Nepal APF Hospital (Reference number: NAPFH-031/2024). Data were analyzed using descriptive statistics like mean, standard deviation and percentage. Chi-square test and Logistic regression was used to determine the associated between nutritional status and selected variables. Epidata version 3.1 was used for data entry and SPSS version 20 was used for analysis.

Results

Sociodemographic & Environmental characteristics

The mean age of the study participant was 30.79 ± 11.11 months. Among 260 children, the majority of them were 24-59 months (66.20%), male (67.70%) and belonged to Brhamin/Chhetri ethnicity (59.60%). Nearly two third of child's mother (63.50%) and majority father (61.50%) had completed secondary level. Regarding occupation, about two third of child's mothers were housewives (63.80%) and most fathers were involved in service (75.40%). Additionally, the majority family had yearly income between 1 and 3 lakhs.

Most households used water jars (46.90%) as their primary sources of drinking water. Majority (80%) reported purifying their drinking water. Nearly all households (99.20%) had access to toilet facilities. Regarding cooking fuel, almost all (99.60%) used LPG.

Maternal and Child Characteristics

The majority of mothers (87.70%) were aged between 20 to 34 years at the time of childbirth. Most mothers (98.10%) had four or more antenatal care (ANC) visits. The highest proportion of deliveries (97.30%) occurred at health institutions. Nearly all mothers (99.20%) reported consuming iron and folic acid during pregnancy.

Most children were first-born (51.50%). Natural delivery was the most common birth type (52.70%). The majority had normal birth weight (87.30%). More than half of the mothers initiated breastfeeding within 1 hour (58.80%). Most children received colostrum (92.70%) and were not given any pre-lacteal feed (73.80%). Exclusive breastfeeding was reported in 59.80% of the cases.

Table 1: Sociodemographic and Environmental Characteristics (n=260).

Variables	Category	Frequency n(%)
Sociodemographic variables		
Child Age	<6 months	16(6.20)
	6-23 months	72(27.70)
	24-59 months	172(66.20)
Mean age ± SD (months)		30.79±11.11
Sex	Male	176(67.70)
	Female	84(32.30)
Family Type	Nuclear	173(66.50)
	Joint	87(33.50)
Ethnicity	Brahmin/ Chhetri	155(59.60)
	Others	105(40.40)
Mother's Education	Non formal to Secondary level	187(71.90)
	Higher Secondary and above	73(28.10)
Father's Education	Non formal to Secondary level	185(71.20)
	Higher Secondary and above	75(28.80)
Father's Occupation	Service	196(75.40)
	Business	32(12.30)
	Others	32(12.30)
Mother's Occupation	Housewife	166(63.80)
	Service	65(25)
	Others	29(11.10)
Family Income (NPR)	Less than 1 lakh	10(3.80)
	1 to 3 lakhs	165(63.50)
	More than 3 lakhs	85(32.70)
Environmental Characteristics		
Drinking water	Safe	134(51.50)
	Unsafe	126(48.50)
Water Purification	Yes	208(80)
	No	52(20)
Toilet Facility	Yes	258(99.20)
	No	2(0.80)
Fuel	Firewood	1(0.40)
	LPG	259(99.60)

Table 2: Maternal and child characteristics and caring practices (n=260).

Variables	Category	Frequency n(%)
Maternal characteristic's		
Mother's age at child birth	< 20 years	7(2.70)
	20-34 years	228(87.70)
	≥ 35 years	25(9.60)
ANC	Less than 4 times	10(3.80)
	4 or more times	250(96.20)
Delivery	Home	7(2.70)
	Health institution	253(97.30)
Iron/ Folic acid consumption	Yes	258(99.20)
	No	2(0.80)
Child characteristics and caring practices		
Birth order	1	134(51.50)
	2	116(44.60)
	3	10(3.80)
Birth type	Natural	137(52.70)
	CS	123(47.30)
Birth Weight	Macrosomia	15(5.80)
	Normal	227(87.30)
	LBW	18(6.90)
Breast feeding	Within 1 hour	153(58.80)
	After 1 hour	107(41.20)
Colostrum feeding	Yes	241(92.70)
	No	19(7.30)
Pre Lacteal feed	Yes	68(26.20)
	No	192(73.80)
Exclusive breastfeeding	Yes	146(59.83)
	No	98(40.17)

Prevalence of nutritional status of under 5 children

After analyzing the data obtained from the anthropometric measurement according to the standard of WHO shows that the prevalence of overall stunting, wasting and underweight was 10%, 11.20% and 15.40% respectively.

The total prevalence of malnutrition (including all type of undernutrition) among the children was (30%) and well nourished (70%).

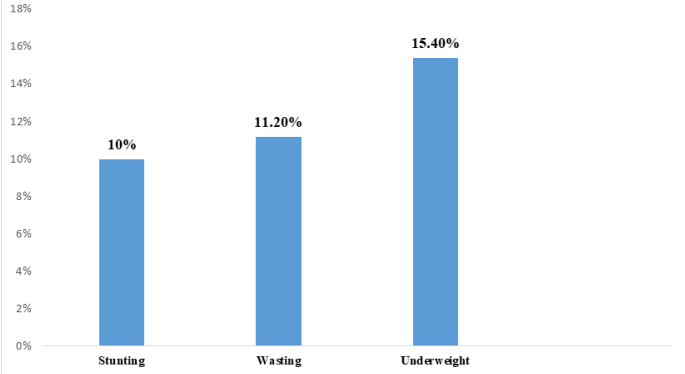

Figure 1: Prevalence of nutritional status of under 5 children

Association between dependent variables and independent variables

Chi Square test was used for evaluating association between dependent variable of malnutrition (Stunting, wasting and underweight) and other explanatory variables.

Association between demographic variables and malnutrition

The result of analysis showed that Child age (p=<0.001) and education of child father (0.005) were significantly associated with malnutrition.

Discussion

Malnutrition is a leading cause of child mortality accounting for half of all child death worldwide and 70-80% of undernourished children live in low and middle income countries, including Nepal.[8] Although Nepal has made progress in improving child nutrition over the past two decades, poor maternal nutrition, suboptimal feeding practices and socio-economic, cultural and geographic disparities in access to resources and services remain major barriers to improving.[4,5]

In this study nutritional status of under five children and its associated factors was assessed in tertiary care center in Kathmandu. Among 260 children in the study, majority of them were male (67.70%) and belonged to Brahmin/Chhetri ethnicity (59.60%). In similar studies by Adhikari et al and Karki et al.[9,10] majority of the participants were male children. This pattern may reflect care seeking behaviours and healthcare accessibility that vary by gender and ethnic groups.

Most of them were first born and had normal birth weight (87.30%). Almost all mothers reported taking iron and folic acid during pregnancy and had at least four or more ANC visits, most were aged 20-34 years

without extremes of ages.[8] As iron deficiency and age of the mother are linked to low birth weight infants11, good ANC compliance and iron and folic acid supplementation may explain the high rate of normal birth weight in this study.

Most children received colostrum (92.70%) and were not given any pre-lacteal feed (73.80%), as reported similar by Shrestha et al.[1] However exclusive breastfeeding in our study was 59.80%, close to national average and higher than reported by Shrestha et al (29.47%).[1,4] This rate although close to national average, is still suboptimal for a facility-based population. This suggests that further efforts are needed to promote and support exclusive breastfeeding.

The prevalence of stunting (10%), wasting (11.20%) and underweight (15.40%) in this study is lower than national and global averages, but remains concerning. UNICEF and World Bank reports estimate undernutrition affects around 25% of under five children while wasting affects 9%. According to NDHS 2022, the prevalence of stunting, wasting and underweight was 25%, 8% and 19% respectively.

Table 3: Association between sociodemographic and environmental variables and malnutrition (n=260).

characteristics		Malnutrition		χ^2	p-value
		Yes n(%)	No n(%)		
Sociodemographic Characteristics					
Child Age	<24 months	44(50)	44(50)	25.34	<0.001*
	≥24 months	34(19.80)	138(80.20)		
Child Sex	Male	57(32.40)	119(67.60)	1.48	0.224
	Female	21(25)	63(75)		
Family Type	Nuclear	49(28.3)	124(71.70)	0.69	0.406
	Joint	29(30)	58(70)		
Ethnicity	Brahmin/Chhetri	49 (31.60)	106 (68.40)	0.47	0.490
	Others	29 (27.60)	76 (72.40)		
Father's Education	Non formal to Secondary	46(24.90)	139(75.10)	8.05	0.005*
	Higher Secondary and above	32(42.70)	43(57.30)		
Mother's Education	Non formal to Secondary	57(30.50)	130(69.50)	0.07	0.786
	Higher Secondary and above	21(28.80)	52(71.20)		
Father's Occupation	Service	54(27.60)	142(72.40)	2.27	0.132
	Others	24(37.50)	40(62.50)		
Mother's Occupation	Housewife	53(31.90)	113(68.10)	0.81	0.367
	Others	25(26.60)	69(73.40)		
Family Income	<3 Lakhs	55(31.40)	120(68.60)	0.52	0.471
	≥3 Lakhs	23(27.10)	62(72.90)		
Environmental Characteristics					
Water Source	Safe	33(24.60)	101(75.40)	3.80	0.051
	Unsafe	45(35.70)	81(64.30)		
Water Purification	Yes	63(30.30)	145(69.70)	0.04	0.839
	No	15(28.80)	37(71.20)		
Toilet Facility	Yes	77(29.80)	181(70.20)	0.38	0.536
	No	1(50)	1(50)		
Fuel Type	LPG	78(30.10)	181(69.90)	0.43	0.512
	Firewood	–	1(100.0)		

Table 4: Association between maternal and child's characteristics and malnutrition(n=260).

Characteristics		Malnutrition		χ^2	p-value
		Yes n(%)	No n(%)		
Maternal Characteristics					
Maternal Age at Birth	20–34 years	69(30.30)	159(69.70)	0.06	0.805
	<20 or ≥35 years	9(28.10)	23(71.90)		
ANC Visits	<4 times	3(30)	7(70)	<0.01	1.000
	≥4 times	75(30)	175(70)		
Place of Delivery	Institutional	76(30)	177(70)	0.01	0.933
	Home	2(28.60)	5(71.40)		
IFA Intake	Yes	77(29.80)	181(70.20)	0.38	0.536
	No	1(50)	1(50)		
Child's Characteristics					
Birth Order	<2	41(30.60)	93(69.40)	0.04	0.828
	≥2	37(29.40)	89(70.60)		
Birth Type	Normal	44(32.10)	93(67.90)	0.62	0.432
	Cesarean	34(27.60)	89(72.40)		
Birth Weight	Normal	63(27.80)	164(72.20)	4.30	0.038*
	Abnormal	15(45.50)	18(54.50)		
Breastfeeding	Within 1 Hour	49(32)	104(68)	0.72	0.394
	After 1 Hour	29(27.10)	78(72.90)		
Colostrum	Yes	71(29.50)	170(70.50)	0.46	0.499
	No	7(36.80)	12(63.20)		
Prelacteal Feeding	Yes	17(25)	51(75)	1.09	0.295
	No	61(31.80)	131(68.20)		
Exclusive BF (n=244)	Yes	47(32.20)	99(67.80)	2.18	0.140
	No	23(23.50)	75(76.50)		

This difference might be because NDHS included all children across Nepal from different geographical reasons whereas our study included children from urban population visiting tertiary center with some health related issues. When compared with hospital-based study in Eastern Nepal by Shrestha et al., which found underweight at 27.80%, stunting at 23.40%, and wasting at 12.40%.[1] our findings indicate a lower burden of chronic malnutrition but similar levels of acute malnutrition. This might be due to regional differences, different hospital catchment population or differences in health service utilization patterns.

Stunting is relatively lower (10%) in our study. The study population is mostly from urban setting family, with better access to health services and better access to antenatal and postnatal care reflected with high institutional delivery (97.30%) and antenatal visits (96.20%) However, 30% overall malnutrition still remains a concern, even in urban, healthcare accessible settings. Also, the higher

prevalence of wasting (11.20%) than the national report of NDHS 2022 might reflect the acute illness related weight loss among children visiting the hospital.[3]

Malnutrition was significantly associated with age of the child (p=<0.001), with 50% of malnourished children being under 24 months. This correlates with previous literature highlighting the critical importance of the first two years for growth and development and catch up growth.[13] Poor complementary feeding practices and increased vulnerability to infections in this age group may partly explain this finding.[14,15] Most of the Studies have shown that lower maternal education adversely affects childhood nutritional status and studies have also shown paternal education being associated with malnutrition.[10,16-19] In our study, not mothers education but there was significant association with father's education and malnutrition and this highlights that parental education especially paternal in patriarchal societies plays a pivotal role in ensuring household income, food security, and health care-seeking behaviors.

Interestingly, maternal education, ANC visits, and institutional delivery were not significantly associated with nutritional outcomes in this study, contrasting with findings from national surveys and other studies in Nepal.[4,20]

No statistically significant associations were observed with environmental factors such as drinking water source, toilet access, or cooking fuel, although these are commonly linked with nutritional outcomes in large-scale population studies.[4,21,22] This might be because of limited variability in the population and it may reflect that almost all of them had high access to sanitation, toilet facilities (99.20%) and were using LPG fuels(99.60%).

Only 59.80% of children were exclusively breastfed. Although exclusive breastfeeding did not have a statistical significance with malnutrition in this study, inadequate breastfeeding is a known risk factor for poor growth and development.[13]

This study highlights that malnutrition, although lower than national report, remains a significant problem even among children with access to tertiary healthcare center. It strengthens the importance of early-life nutrition interventions, promoting male parental involvement and education, and continuing public health efforts both at the community and institutional levels. However, it is a hospital based study and its findings may not fully represent the broader community. Additionally, as information was obtained from caregiver and recall bias can be present.

Conclusions

This study identified a notable burden of malnutrition among under five children in a tertiary care center. Younger age and father's education status were significantly associated with malnutrition. These findings suggest the need for targeted nutritional interventions in early two years of life to address early childhood undernutrition. Strengthening nutrition counseling during antenatal and OPD visits, and involvement of fathers, could improve awareness and engagement in child nutrition. Community bases programs should be deigned to involve both parents.

Source of Funding: None

Acknowledgement: None

Conflict of Interest

The authors declare no competing interest. Anil Shrestha is currently serving as Journal Manager of Medical Journal of Armed Police Force Nepal and Drishti Poudel is serving as Editor in MJAPFN. They were not involved in the editorial review or decision-making for this manuscript.

Author's Contribution and ORCID iDs

Dr. Bharat Chand
Conceptualization, Methodology, Literature review, Data analysis, Drafting.

: https://orcid.org/0009-0006-9140-6429

Dr. Drishti Poudel
Conceptualization, Methodology, Literature review and Drafting.

: https://orcid.org/0009-0005-7075-8110

Anil Shrestha
Conceptualization, Methodology, Data analysis and Manuscript Drafting.

: https://orcid.org/0009-0006-0721-162X

Puspa Chand Thakuri
Conceptualization, Methodology, Literature review, Data analysis, Drafting.

: https://orcid.org/0000-0002-5294-1174

Madhu Thapa
Data acquisition and Drafting.

: https://orcid.org/0000-0002-4781-4584

Anita Shahi
Conceptualization, Data acquisition and Manuscript editing

: https://orcid.org/0009-0005-0426-1376

References

1. Shrestha M, Rai B, Agrawal J, Chaudhary S, Shrestha K, Singh RRB, et al. Prevalence and Associated Factors of Malnutrition in Under Five Children in Eastern Nepal: A Hospital Based Study. J Nepal Paediatr Soc. 2023 Sep 10;43(1):73–81. DOI: 10.60086/jnps492
2. Park K. Parks Textbook of Preventive and Social Medicine. 23rd ed. Jabalpur: Banarsidas Bhanot Publishers; 2015. Available from: https://milonm28.wordpress.com/wp-content/uploads/2017/08/parks-preventive-social-medicine-23rd-ed.pdf
3. World Health Organization. Malnutrition [Internet]. Geneva (CH): World Health Organization; 2024 Mar 1 [cited 2024 Dec 11]. Available from: https://www.who.int/news-room/fact-sheets/detail/malnutrition
4. Ministry of Health and Population (Nepal), New ERA. Nepal Demographic and Health Survey 2022. Kathmandu, Nepal; 2023. [cited 2024 Dec 11]. Available from: https://dhsprogram.com/pubs/pdf/PR142/PR142.pdf
5. Chitekwe S, Torlesse H, Aguayo VM. Nutrition in Nepal: Three Decades of Commitment to Children and Women. Matern Child Nutr. 2022 Jan;18 Suppl 1:e13229. DOI: 10.1111/mcn.13229
6. Sangroula RK, Uprety S. Factors Associated with Nutritional Status of Under Five Children Among Satar Community of Bhadrapur Municipality, Jhapa, Nepal. Int J Community Med Public Health. 2020 May 27;7(6):2059. DOI: 10.18203/2394-6040.ijcmph20202452
7. Chaudhary P, Malla R, Thapa JK, Sangroula RK. Factors Associated with Nutritional Status of Under Five Children in Rara Chhayanath Municipality, Mugu District. Int J Community Med Public Health. 2022 Jul 27;9(8):3101. DOI: 10.18203/2394-6040.ijcmph20222007
8. Park SE, Kim S, Ouma C, Loha M, Wierzba TF, Beck NS. Community Management of Acute Malnutrition in the Developing World. Pediatr Gastroenterol Hepatol Nutr. 2012 Dec 31;15(4):210. DOI: 10.5223/pghn.2012.15.4.210
9. Karki S, Koirala S, Shrestha S. Risk Factors of Malnutrition Among Under Five Children Admitted in Kanti Children's Hospital in Nepal. Kathmandu Univ Med J. 2021;19(76):486–493. DOI: 10.1002/ccr3.6438
10. Adhikari D, Khatri RB, Paudel YR, Poudyal AK. Factors Associated with Underweight Among Under-Five Children in Eastern Nepal: Community-Based Cross-Sectional Study. Front Public Health. 2017 Nov;5:350. DOI: 10.3389/fpubh.2017.00350
11. Girma S, Fikadu T, Agdew E, et al. Factors Associated with Low Birthweight Among Newborns Delivered at Public Health Facilities of Nekemte Town, West Ethiopia: A Case Control Study. BMC Pregnancy Childbirth. 2019 May;19:220. DOI: 10.1186/s12884-019-2372-x
12. UNICEF, World Bank, WHO. Levels and Trends in Child Malnutrition [Internet]. 2021 May 5 [cited 2025 Jun 12]. Available from: https://www.who.int/publications/i/item/9789240025257
13. 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 Jan 26;371(9609):340–57. DOI: 10.1016/S0140-6736(07)61692-4
14. World Bank. Improving Nutrition Through Multisectoral Approaches. Washington, DC: World Bank; 2021 [cited 2025 Jun 12]. Available from: https://ieg.worldbankgroup.org/evaluations/world-bank-support-reducing-child-undernutrition
15. World Health Organization. Complementary Feeding. Geneva: WHO; 2023 [cited 2024 Dec 12]. Available from: https://www.who.int/health-topics/complementary-feeding
16. Khan REA, Raza MA. Determinants of Malnutrition in Indian Children: New Evidence from IDHS Through CIAF. Qual Quant. 2016;50(1):299–316. DOI: 10.1007/s11135-014-0149-x
17. Vijay J, Patel KK. Malnutrition Among Under-Five Children in Nepal: A Focus on Socioeconomic Status and Maternal BMI. Clin Epidemiol Glob Health. 2024 May 1;27:101571. DOI: 10.1016/j.cegh.2024.101571
18. The Association of Parental Education with Childhood Undernutrition in Low- and Middle-Income Countries: Comparing the Role of Paternal and Maternal Education [Internet]. 2017 [cited 2025 Jun 22]. DOI: 10.1093/ije/dyw133
19. Alderman H, Headey DD. How Important Is Parental Education for Child Nutrition? World Dev. 2017;94:448–64. DOI: 10.1016/j.worlddev.2017.02.007

20. Pokhrel K, Nanishi K, Poudel KC, Pokhrel KG, Tiwari K, Jimba M. Undernutrition Among Infants and Children in Nepal: Maternal Health Services and Their Roles to Prevent It. Matern Child Health J. 2016;20(10):2037–49. DOI: 10.1007/s10995-016-2023-z

21. Fink G, Günther I, Hill K. The Effect of Water and Sanitation on Child Health: Evidence from the Demographic and Health Surveys 1986–2007. Int J Epidemiol. 2011;40(5):1196–204. DOI: 10.1093/ije/dyr102

22. UNICEF. The Impact of Water, Sanitation and Hygiene on Key Health and Social Outcomes: Review of Evidence [Internet]. 2016 [cited 2025 Jun 25]. DOI: 10.13140/RG.2.2.36572.49280

Bios

Dr. Bharat Chand: Dr. Bharat Chand is a Consultant Pediatrician and H.O.D of Pediatrics at Nepal Armed Police Force hospital, Kathmandu, Nepal. He graduated from IOM (TUTH) with an MD in Pediatrics. He is dedicated to promoting children's health and well-being. A passionate pediatrician, his area of interest in research includes child nutrition, infectious disease and child heart.

Email: chandbharat@hotmail.com

Dr. Drishti Poudel: Dr. Drishti Poudel is a Consultant Pediatrician at Nepal Armed Police Force hospital, Kathmandu, Nepal. She holds an MD in Pediatrics and has nine Years of clinical experience, including one year in pediatrics. Her research interests include neonatal care, Pediatric Nutrition, growth, development and infectious diseases.

Email: drishti.delta@gmail.com

Mr. Anil Shrestha: Anil Shrestha is a dynamic public health professional with a Master's Degree in Public Health, currently working as journal manager at MJAPFN. He is actively engaged in national and international research. He demonstrates a strong passion for advancing public health knowledge and improving healthcare outcomes through significant contributions to the field.

Email: anilshrestha113@gmail.com

Ms. Pushpa Chand Thakuri: Mrs. Pushpa Chand Thakuri is a lecturer at Tribhuvan University Institute of Medicine (TUIOM), Maharajgunj Nursing Campus, Maharajgunj. She has achieved her M.Sc. In Child Health Nursing Degree from BPKIHS, Dharan. She has been involved in the Nursing Profession since last 15 years. She has conducted descriptive and experimental research, especially in the Pediatrics sector.

Email: chandpushpa3@gmail.com

Ms. Madhu Thapa: Madhu Thapa is a clinical Nutritionist at Nepal Armed Police Force Hospital. She had pursued her Master's and Bachelor's degrees in Nutrition and Dietetics. Her research area of interest includes myriad fields like child nutrition, sports nutrition, nutrition in non-communicable diseases, etc, where she has contributed to a few articles in peer-reviewed journals.

Email: thapamadhu563@gmail.com

Ms. Anita Shahi: Mrs. Anita Shahi is a senior dietician at Nepal Mediciti Hospital, Kathmandu. She has achieved her Master's degree in Food and Nutrition from Bundelkhand University, Jhansi, India. With more than 17 years of experience in clinical nutrition, dietary planning, and patient counselling, she is actively committed to fostering a healthy lifestyle through balanced nutrition and patient education.

Email: shahi.anita7@gmail.com