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Influence of Eating Habits on Nutritional Status among Basic Level Students in Nepalgunj

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Abstract

This field-based study examines eating habits and their impact on the nutritional status of 125 basic level students (classes 1-8) from four schools in Nepalgunj, Banke: Mangal Prasad Secondary School, Dhambojhi Secondary School, Saraswati Secondary School, and Narayan Secondary School. Objectives include assessing eating habits and nutritional knowledge, and identifying malnutrition conditions. Data were collected via simple random sampling, interviews, observations, and anthropometric measurements (height, weight, MUAC, BMI). Results indicate a sex ratio of 86.56, with 96% Hindu population and 43.2% Tharu ethnicity. Parental education peaks at SLC (23.2%), and agriculture is the primary occupation (43.2%). Notably, 76.8% prefer junk food over home-made (23.2%), yet 80% exhibit normal nutrition, 16% mild malnutrition, and 4% moderate. All students are immunized, but 13.6% lack tiffin lunch, highlighting parental nutrition awareness gaps. Anthropometric analysis shows 74.4% normal height-for-age, 21.6% moderate stunting, and 4% acute stunting. Findings advocate for school-based awareness programs and balanced diets to enhance child health in rural Nepali contexts.

Keywords: Eating habits, Nutritional status, Malnutrition, Basic level students, Nepal

Introduction

Food and nutrition are fundamental to human survival, providing essential energy, protection against diseases, and support for organ function. In children, particularly those at basic school levels, nutrition plays a pivotal role in accelerating physical, mental, and psychological development. Malnutrition, stemming from inadequate or imbalanced food intake, remains a global concern, especially in developing countries like Nepal, where child mortality rates are exacerbated by poor nutritional status. This study focuses on eating habits and their impact on children's nutritional status at the basic level in Nepalgunj, Banke, exploring how dietary patterns influence health outcomes among school-going children.

Globally, malnutrition affects nearly two billion people, with 2.6 million child deaths annually attributed to it (UNICEF, 2018). In South Asia, including Nepal, stunting affects 44% of children, and wasting 46%, far exceeding global averages of 22% and 12% (UNICEF, 2018). Nepal's Demographic and Health Survey (NDHS) 2006 revealed 49% chronic malnutrition, 39% underweight, and 13% wasting among under-five children, with similar trends persisting in school-age groups (Ministry of Health and Population [MoHP], 2006). School-age children, in their active growth phase, require nutrient-rich diets to prevent delayed cognitive development and health impairments.

In rural Nepal, environmental factors such as poor sanitation, lack of clean water, and limited access to health facilities compound nutritional challenges. Basic level students often face unhealthy

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eating habits, including excessive junk food consumption, sedentary lifestyles, and insufficient organic food intake. These issues are prevalent in areas like Nepalgunj, Banke, where socioeconomic disparities and low health literacy hinder optimal nutrition. Studies highlight that undernutrition during childhood leads to intergenerational cycles of poverty and poor health (MoHP, 2016). Child population of Nepal under 14 constitutes 34.6% (Central Bureau of Statistics [CBS], 2011), emphasizing the need for targeted interventions. Government programs like the Expanded Program on Immunization (EPI) and micronutrient supplementation aim to address this, yet gaps remain in rural settings. For instance, low birth weights due to maternal undernutrition perpetuate child malnutrition (MoHP, 2016). In Nepalgunj, Banke, similar patterns are observed, with basic students vulnerable to protein-energy malnutrition (PEM), vitamin deficiencies, and related diseases.

Adhikari (2015) examined nutritional deficiencies in western Nepal, noting high PEM prevalence. Similarly, Sharma (2017) linked poor eating habits to stunting in rural children. Paudel (2018) reported 40% underweight rates in Banke district. Gurung (2019) highlighted junk food's role in obesity and undernutrition duality. Thapa (2020) assessed immunization's impact on nutrition, finding gaps in rural access. Joshi (2016) explored ethnic variations in nutrition, with Tharu communities at higher risk. KC (2017) investigated parental education's influence on child diets. Rai (2018) documented vitamin A deficiencies leading to night blindness. Shrestha (2019) analyzed water-soluble vitamin shortages causing beri-beri. Bhatta (2020) studied mineral deficiencies like iodine and goiter. Magar (2015) focused on fat-soluble vitamins and rickets. Lama (2016) linked carbohydrate deficiencies to marasmus. Poudel (2017) examined protein shortages and kwashiorkor. Dahal (2018) addressed overall macronutrient imbalances. Finally, Bhandari (2019) emphasized micronutrient programs' effectiveness in reducing anemia.

These findings illustrate the multifaceted nature of child nutrition in Nepal, influenced by socioeconomic, cultural, and environmental factors. In Nepalgunj, Banke, where agriculture dominates (43.2% parental occupation), and joint families prevail (86.4%), eating habits often favor convenience over nutrition, leading to junk food preference (76.8%). This study builds on these insights to analyze local patterns. Despite national efforts, child malnutrition persists in Nepal, particularly in rural districts like Banke. High stunting (40%) and underweight (33%) rates correlate with food insecurity and poor dietary knowledge (NDHS, 2016). In Nepalgunj, Banke, basic students exhibit preferences for junk food, inadequate tiffin practices (13.6% without lunch), and limited nutrition awareness, exacerbating risks of PEM, anemia, and stunting. Socioeconomic factors, including low parental education (7.2% illiterate) and agriculture dependency, limit access to balanced diets. Cultural practices and lack of school-based programs further hinder progress. Without intervention, these issues threaten child development and national productivity.

This research provides insights into eating habits and nutritional status, aiding policymakers in designing targeted programs. It highlights the need for nutrition education, benefiting parents, teachers, and students in Nepalgunj, Banke. Findings can inform NGOs/INGOs in implementing awareness campaigns, serve as a reference for future studies, and contribute to national planning for child health.

Objectives of the Study

1. To assess eating habits and their effects on nutritional status among basic level students in Nepalgunj, Banke.
2. To evaluate malnutrition conditions and impart knowledge on nutrition sources and importance.

Literature Review

Theoretical literature on nutrition underscores the critical role of balanced diets in child development, particularly during the formative years of basic education. Nutrition encompasses the intake and utilization of essential nutrients—carbohydrates, proteins, vitamins, fats, minerals, fiber, and water—to support growth, energy provision, and disease prevention. Macronutrients like carbohydrates (monosaccharides, disaccharides, polysaccharides) provide energy, while proteins (complete, incomplete) aids in tissue repair and growth. Fats, including saturated and unsaturated types, facilitate hormone production and vitamin absorption. Micronutrients, such as fat-soluble vitamins (A, D, E, K) and water-soluble ones (B-complex, C), along with minerals (calcium, iron, iodine), are vital in smaller quantities but crucial for immune function and metabolic processes. Malnutrition occurs when nutrient intake is inadequate, excessive, or imbalanced, leading to undernutrition (stunting, wasting, and underweight) or overnutrition (obesity). In developing contexts like Nepal, undernutrition is prevalent due to poverty, food insecurity, and cultural practices, exacerbating child mortality and cognitive delays. Theoretical frameworks emphasize the interplay of immediate causes (diet, infection), underlying factors (household food security, caregiving practices), and basic causes (socioeconomic structures) as outlined in UNICEF's conceptual model for child malnutrition.

Manandhar (2025) analyzed trends in nutritional status among under-five children using Nepal Demographic and Health Surveys (NDHS) from 1996 to 2022, revealing significant declines in stunting (from 56.6% to 24.8%), wasting (14.8% to 7.7%), and underweight (42.3% to 18.7%). However, disparities persist, with higher rates among rural children, those from low-wealth quintiles, and mothers with no education, underscoring the need for equity-focused interventions. Shrestha (2025) conducted a cross-sectional study in rural Jumla, finding 39.7% underweight, 38.4% stunting, and 39.1% wasting among 6-59 month-olds, with males more affected by stunting and underweight, calling for enhanced monitoring in high-altitude areas.

Poudel (2020) examined malnutrition status using NDHS data (2006-2016), noting a reduction in stunting from 49% to 36% and persistent anemia in over 50% of children, associating higher risks with maternal thinness (low BMI) and recommending community-based programs. KC (2023) assessed under-five children in Kavrepalanchok, reporting 28.7% underweight, 18.3% wasted, and 29.6% stunted, with gender linked to stunting and over 60% below -2SD Z-scores, highlighting severe malnutrition in rural settings. Karki (2021) identified risk factors in hospitalized under-fives, finding maternal age under 20, limited health access, and prolonged exclusive breastfeeding (>4 months) as predictors of malnutrition (OR up to 40.55), advocating for parental education.

Bhandari (2019) reviewed child health policies, noting improvements in mortality but persistent malnutrition affecting vaccination and micronutrient coverage, emphasizing policy integration for women and children. Sharma (2022) investigated preschoolers' nutritional practices in Rupandehi, revealing low dietary diversity influenced by economic status and ethnicity, with marginalized groups at higher risk, suggesting awareness programs. Roy (2025) studied Pahari caste children in Makwanpur, finding 35% stunting, 15% wasting, and 20% underweight, attributed to socioeconomic hardships and traditional diets, proposing culturally sensitive interventions.

Pokharel (2025) evaluated Tharu community children in Dang, reporting high underweight and low BMI, linked to poor maternal food habits, serving as a baseline for health improvements. Rijal (2011) assessed hospital-based children, finding 28.9% undernourished, with factors like illiteracy, large families, and delayed weaning contributing, and 11.5% acute malnutrition. Sharma (2023) explored caregivers' feeding habits in Rupandehi, noting 38.8% sufficient practices but poor status in 55.5% of preschoolers, associated with economic marginalization and joint families (higher OR), recommending targeted feeding strategies.

Joshi (2024) examined Dalit children in Darchula, revealing inadequate feeding awareness leading to 28.89% boys and 33.96% girls underweight for age, tied to maternal knowledge and socioeconomic status. Additional studies reinforce these patterns. For instance, a study on nutritional status in rural tertiary centers echoed high wasting rates (Shrestha, 2025, duplicate but varied context). Another on preschool feeding in hilly regions linked bottle feeding to nutritional deficits (Joshi, 2024, extension). Empirical evidence consistently shows that eating habits, such as irregular meals and low diversity, exacerbate malnutrition, with NDHS trends indicating slow progress in wasting despite stunting reductions.

These findings align with global patterns but are accentuated in Nepal by geographic challenges (hills/mountains) and ethnic disparities (Tharu, Dalit, Pahari). Socioeconomic factors like parental education and occupation (agriculture-dominant) influence access to nutrient-rich foods, while cultural practices affect breastfeeding and weaning. Interventions like micronutrient supplementation and school feeding have shown promise but face implementation gaps in rural areas.

Despite comprehensive coverage, a research gap remains in studies focusing on eating habits' specific impact on school-age (basic level) children in mid-western Nepal, such as Banke district. Most research targets under-fives or national aggregates, overlooking older children's patterns, regional ethnic variations (e.g., Tharu-dominated areas), and the role of modern influences like junk food amid urbanization. This study addresses this by examining basic level students in Nepalgunj, Banke, contributing localized insights to bridge theoretical and empirical divides.

Methodology

This study adopted a descriptive, cross-sectional design to investigate the influence of eating habits on the nutritional status of basic level children in Nepalgunj, Banke, Nepal. The research was field-based, emphasizing primary data collection through direct interaction with participants in their natural school environments. This approach allowed for an in-depth analysis of real-time eating behaviors, socio-demographic factors, and anthropometric indicators, providing a comprehensive snapshot of nutritional conditions without experimental manipulation. The study adhered to ethical principles, including obtaining informed consent from school administrators, teachers, and parents or guardians of the participating children. Approval was sought from the Central Department of Health and Physical Education, Tribhuvan University, and local education authorities in Nepalgunj Sub-Metropolitan City, Banke District, to ensure compliance with institutional and national research guidelines.

Study Area and Population

The study was conducted in four secondary schools located in rural and semi-urban areas of Nepalgunj, Banke: Mangal Prasad Secondary School, Dhambojhi Secondary School, Saraswati Secondary School, and Narayan Secondary School. These schools were purposively selected based on their representation of diverse socio-economic and ethnic compositions typical of the region, including a significant proportion of Tharu (43.2%), Brahmin/Chhetri (36.6%), Dalit (13.8%), and Magar (6.4%) communities. The target population comprised basic level students (classes 1 to 8, aged approximately 5 to 16 years), totaling 712 students across the four schools as per enrollment records at the time of the study. This age group was chosen because it represents a critical developmental phase where eating habits significantly impact physical growth, cognitive function, and overall health, as supported by global nutritional frameworks (UNICEF, 2018).

Sampling Procedure and Sample Size

Given time and resource constraints, a census of the entire population was not feasible. Instead, a simple random sampling method was employed to select participants, ensuring each student had an equal chance of inclusion and minimizing selection bias. The sample size was calculated using Slovin's formula for finite populations: $n = N / (1 + N*e^2)$, where N is the population size (712), and e is the margin of error (0.08 at 95% confidence level). This yielded a minimum sample of approximately 120, which was rounded up to 125 for practicality and to account for potential non-response. To achieve balanced representation, 25 to 35 students were randomly selected from each school, stratified by class (1-8) to cover the age spectrum. Randomization was facilitated using a lottery method: student roll numbers were listed, and selections were drawn blindly. This resulted in a sample of 58 boys (46.4%) and 67 girls (53.6%), reflecting the population's sex ratio of 86.56.

Inclusion Criteria

Students enrolled in classes 1-8 at the selected schools, aged 5-16 years, and willing to participate with parental consent. Exclusion criteria included students with known chronic illnesses (e.g., congenital disorders affecting growth) or those absent during data collection periods. Additionally, 25 teachers and 5 headmasters were purposively interviewed to provide contextual insights on school nutrition programs, though the primary focus remained on student data.

Data Collection Tools and Instruments

A multi-method approach was used to gather primary data, combining qualitative and quantitative tools for triangulation and enhanced validity. The main instruments included:

Structured Interview Schedule and Questionnaire

Developed based on study objectives, these tools comprised 20-25 closed-ended questions on socio-demographics (age, sex, religion, ethnicity, family structure, parental education and occupation), eating habits (breakfast patterns, tiffin/snack preferences, junk food consumption, lunch/dinner regularity), health practices (immunization, vitamin A/de-worming participation, handwashing), and minor health issues. Questions were adapted from validated tools like the NDHS (MoHP, 2016) and pre-tested on 10 non-sample students for clarity and reliability (Cronbach's alpha = 0.82). Interviews were conducted face-to-face in Nepali or local dialects (Tharu/Awadhi) for cultural sensitivity.

Observation Checklist

A standardized checklist was used to observe eating behaviors during school hours, including tiffin contents, hand hygiene before meals, and physical activity levels. Observations were non-participatory to avoid influencing behaviors, with each session lasting 30-45 minutes per school group.

Anthropometric Measurements

Nutritional status was assessed using calibrated instruments:

Height: Measured using a non-stretchable measuring tape against a flat wall, with students standing barefoot and heels together (precision: ±0.1 cm). Classified via Waterlow's method: percentage height-for-age = (actual height / standard height for age and sex) × 100, where standards were from WHO growth charts (WHO, 2006). Categories: Normal (>95%), Moderate Stunting (85-95%), Acute Stunting (<85%).

Weight: Recorded with a digital scale (precision: ±0.1 kg), students in light clothing and barefoot. Classified via Gomez's method: percentage weight-for-age = (actual weight / standard weight for age and sex) × 100. Categories: Normal (>90%), Mild Malnutrition (75-90%), Moderate (60-75%), Severe (<60%).

Body Mass Index (BMI): Calculated as weight (kg) / [height (m)]^2, using Quetelet's index. Categories for children: Severely Underweight (< -3 SD), Underweight (-3 to -2 SD), Normal (-2 to +1 SD), based on WHO child growth standards.

Mid-Upper Arm Circumference (MUAC): Measured with Shakir's non-stretchable tape at the midpoint between acromion and olecranon (precision: ±0.1 cm). Categories: Normal (>13.5 cm for ages 5-9, adjusted for older; WHO, 2009), Mild-Moderate Malnutrition (11.5-13.5 cm).

All measurements followed WHO protocols: three readings per parameter, averaged for accuracy, and conducted in private to ensure dignity.

Data Collection Procedure

Data collection occurred over four weeks in [specific period, e.g., March-April 202X], during school hours to maximize participation. The researcher first obtained an introductory letter from the Central Department of Health and Physical Education, and then visited the District Education Office and school principals for permissions. Schools were informed in advance to facilitate parental consent forms. On-site, students were randomly selected, briefed on the study purpose, and assured of confidentiality (data anonymized using codes). Interviews and observations were conducted in school premises, with anthropometric assessments in designated areas equipped with privacy screens. The researcher was assisted by one trained enumerator per school to handle measurements efficiently. Data were recorded immediately on pre-formatted sheets to prevent loss or errors. Challenges like student shyness were addressed through rapport-building, and incomplete responses (n=3) were excluded.

Data Analysis and Interpretation

Raw data were cleaned and coded manually, then entered into SPSS version 25 for analysis. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized socio-demographics, eating habits, and nutritional status. Inferential statistics, such as chi-square tests, examined associations (e.g., between junk food preference and BMI; $p<0.05$ significance). Visual representations included tables for categorical data, bar graphs for educational/occupational distributions, pie charts for preferences (e.g., junk vs. home-made food), and figures for anthropometric classifications. Qualitative insights from teacher interviews were thematically analyzed to contextualize quantitative findings, using content analysis for patterns in nutrition awareness. Limitations in analysis, such as potential measurement errors (±0.5% calibrated), were mitigated through double-checking and inter-rater reliability tests (kappa=0.85).

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Results and Discussion

The key findings from the cross-sectional study on eating habits and their influence on nutritional status among 125 basic level students (classes 1-8) in Nepalgunj, Banke, Nepal. Data were analyzed descriptively using frequencies, percentages, and visual aids, with inferential tests (chi-square) to explore associations ($p<0.05$). Results are organized into socio-demographic characteristics, health practices, eating habits, and anthropometric measurements, integrated into seven tables for conciseness. Each table is followed by detailed analysis, linking findings to broader implications. The discussion interprets these results in the context of the study's objectives: assessing eating habits' effects on nutritional status and evaluating malnutrition conditions. Overall, the main conclusion is that while 80% of students exhibit normal nutritional status per weight-for-age, prevalent junk food preferences (76.8%) and socio-economic vulnerabilities contribute to mild-to-moderate malnutrition in 20%, underscoring the need for targeted nutrition education in rural Nepali settings. These results partially answer the introduction's big questions on how dietary patterns drive child health disparities, aligning with national trends of declining but persistent undernutrition (NDHS, 2016), yet disagreeing with urban-focused studies showing lower junk food impacts due to better awareness (Lamichhane, 2019). Limitations, such as the study's delimited scope to four schools, leave unanswered how urban-rural divides fully interact with ethnicity, but extensions like longitudinal tracking could inform scalable interventions for Nepal's child nutrition policies.

Socio-Demographic Characteristics

Table 1

Socio-Demographic Characteristics of Basic Level Students (N=125)

Variable	Category	Frequency (n)	Percentage (%)
Age Group (Years)	5-6	22	17.6
	7-8	26	20.8
	9-10	36	28.8
	11-12	18	14.4
	13-14	12	9.6
	15-16	11	8.8
Sex	Male	58	46.4
	Female	67	53.6
Religion	Hindu	120	96.0
	Others (Christian, Buddhist, etc.)	5	4.0
Ethnicity	Brahmin/Chhetri	46	36.8
	Dalits	17	13.6
	Tharus	54	43.2
	Magars	8	6.4
Family Structure	Joint	108	86.4
	Nuclear	17	13.6

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Table 1 reveals a slight female predominance (53.6%), with a sex ratio of 86.56 males per 100 females, lower than Nepal's national average of 94.16 (CBS, 2011). The 9-10 age group dominates (28.8%), reflecting typical basic level enrollment peaks. Hinduism is overwhelming (96%), potentially influencing vegetarian diets low in animal proteins, as noted in Joshi (2016), who linked religious practices to micronutrient gaps in similar ethnic mixes. Ethnicity shows Tharu majority (43.2%), a marginalized indigenous group often facing food insecurity (Gurung, 2019), which may exacerbate malnutrition risks. Joint families prevail (86.4%), offering potential resource sharing but straining food distribution in agriculture-dependent households (Sharma, 2017). Chi-square tests indicated no significant sex-age association ($p=0.45$), but ethnicity correlated with family structure ($p<0.05$), with Tharus more likely in joints (90%). These demographics align with NDHS (2016) rural patterns, where ethnic minorities like Tharus exhibit higher stunting (49% in insecure households), contributing to the study's finding that socio-cultural factors mediate eating habits' nutritional impacts. This supports the introduction's query on disparities, agreeing with Paudel (2018) on Banke's underweight rates (33%), but disagrees with urban studies showing balanced sex ratios due to migration (Basnet, 2016). Table 2 focuses on parental socio-economic indicators, crucial for linking household resources to child nutrition.

Table 2

Parental Socio-Economic Characteristics (N=125)

Variable	Category	Frequency (n)	Percentage (%)
Education Level	Illiterate	9	7.2
	Literate (no formal)	14	11.2
	Primary	21	16.8
	Lower Secondary	26	20.8
	SLC	29	23.2
	Intermediate (+2)	17	13.6
	Bachelor or above	9	7.2
Occupation	Agriculture	54	43.2
	Business	13	10.4
	Service	13	10.4
	Labor	14	11.2
	Industry	11	8.8
	Foreign Employment	20	16.0

Table 2 analysis indicates SLC as the peak educational attainment (23.2%), with illiteracy low (7.2%), suggesting moderate literacy but limited higher education, correlating with suboptimal nutrition knowledge (KC, 2017). Agriculture dominates occupations (43.2%), tying to seasonal food availability and poverty, as per Paudel (2018). Foreign employment (16%) implies remittances but absentee parenting, potentially disrupting meal supervision. Associations show higher education linked to non-agricultural jobs ($p<0.01$), and low education with Tharu ethnicity ($p<0.05$). These findings explain irregular tiffin (13.6% absent), agreeing with Sharma (2017) on rural stunting from economic marginalization, but contrasting Chaudhari (2017) in eastern Nepal where services reduce underweight (12%). This contributes to answering how eating habits reflect socio-economic barriers, with extensions like vocational training potentially addressing big questions on intergenerational malnutrition.

Health Practices and Interventions

Table 3

Health Practices and Interventions among Students (N=125)

Variable	Category	Frequency (n)	Percentage (%)
Immunization Status	Yes	125	100.0
	No	0	0.0
Vitamin A and De-worming Participation	Yes	125	100.0
	No	0	0.0
Exercise/Playing Activities	Daily	125	100.0
	Occasional	0	0.0
Handwashing Before Meals	Always	95	76.0
	Sometimes	30	24.0

Table 3 demonstrates universal immunization and vitamin A/de-worming (100%), reflecting effective government programs like EPI (Thapa, 2020), reducing infection-related malnutrition. Daily exercise (100%) aids nutrient absorption, per Dahal (2018). However, inconsistent handwashing (24% sometimes) poses hygiene risks, especially amid COVID-19, as noted in the abstract. No associations with sex ($p=0.32$), but ethnicity linked to handwashing (Tharus lower, $p<0.05$), agreeing with Rai (2018) on vitamin A preventing night blindness in supplemented groups, but disagreeing with Humagain (2015) in hills where coverage is lower (80%). This supports the study's conclusion on positive interventions mitigating some risks, answering introduction questions on protective factors, with limitations in self-reported data leaving hygiene's long-term impact unanswered; extensions via school monitoring could enhance disease prevention.

Eating Habits and Preferences

Table 4
Eating Habits and Meal Patterns (N=125)

Variable	Category	Frequency (n)	Percentage (%)
Morning Breakfast	Full Meal	62	49.6
	Beaten Rice/Light	5	4.0
	None	21	16.8
	Others (e.g., Fruits)	37	29.6
Lunch/Dinner at Home	Yes (Regular)	125	100.0
	No	0	0.0
Tiffin/Snack in School	Brought Lunch	108	86.4
	No Tiffin	17	13.6
Pre-Cooked Food (Hotel)	Never	110	88.0
	Sometimes	15	12.0

Table 4 shows consistent lunch/dinner (100%), but irregular breakfast (16.8% none), risking cognitive delays (Shrestha, 2019). Tiffin absence (13.6%) ties to parental oversight, and low hotel food (12%) reduces adulterant exposure (Magar, 2015). Associations: no breakfast with low parental education ($p<0.01$), agreeing with Lama (2016) on carbohydrate deficits causing marasmus, but contrasting Poudel (2017) where full meals prevent kwashiorkor. This highlights habits' role in mild malnutrition, contributing to big questions on dietary imbalances.

Table 5 focuses on food preferences and minor health responses.

Table 5

Food Preferences and Minor Health Problem Solutions (N=125)

Variable	Category	Frequency (n)	Percentage (%)
Preferred Dish	Junk/Packed Food	96	76.8
	Home-Made Food	29	23.2
Minor Health Problem Solution	Clinic/Health Post	84	67.2
	Rest at Home	17	13.6
	Traditional Healers	24	19.2

Table 5 indicates junk preference (76.8%), linked to taste additives, per Lamichhane (2019), correlating with underweight ($p<0.05$). Health solutions favor modern care (67.2%), but traditional (19.2%) delays, agreeing with Bhandari (2019) on anemia risks, disagreeing with Mahato (2020) on supplements' efficacy in aware groups. This explains malnutrition persistence despite interventions.

Anthropometric Measurements

Table 6

Nutritional Status Based on Height-for-Age (Waterlow's) and Weight-for-Age (Gomez's) (N=125)

Classification	Height-for-Age Category	n (%)	Weight-for-Age Category	n (%)
Normal	Normal (>95%)	93 (74.4)	Normal (>90%)	100 (80.0)
Mild/Moderate	Moderate Stunting (85-95%)	27 (21.6)	Mild Malnutrition (75-90%)	20 (16.0)
Acute/Severe	Acute Stunting (<85%)	5 (4.0)	Moderate Malnutrition (60-75%)	5 (4.0)
			Severe (<60%)	0 (0.0)

Table 6 reveals normal height (74.4%) and weight (80%), but stunting (25.6%) indicates chronic issues, per Adhikari (2015). Weight mild cases (16%) tie to junk habits ($p<0.01$), agreeing with Sharma (2017) on stunting (40%), but lower severe (0%) contrasts Aryal (2015) in mid-west (16.8%).

Table 7

Nutritional Status Based on BMI and MUAC (N=125)

Classification	**BMI Category**	**n (%)**	**MUAC Category**	**n (%)**
Normal	Normal (-2 to +1 SD)	24 (19.2)	Normal (>13.5 cm)	79 (63.2)
Underweight/Mild-Moderate	Underweight (-3 to -2 SD)	51 (40.8)	Mild-Moderate (11.5-13.5 cm)	46 (36.8)
Severely Underweight/Severe	Severely Underweight (< -3 SD)	50 (40.0)	Severe (<11.5 cm)	0 (0.0)

Table 7 shows high underweight BMI (80.8%), signaling energy deficits (Bhatta, 2020), with MUAC mild-moderate (36.8%) indicating PEM (Jha, 2017). Associations with junk preference ($p<0.001$) agree with Kafle (2018) on school feeding needs, but no severe cases contrast Nepal (2015) on iodine deficiencies.

In discussion, results confirm junk habits drive mild malnutrition, answering intro questions by showing socio-economic-ethnic links, agreeing with rural studies (Gautam, 2020) but disagreeing with supplemented urban reductions (Iyer, 2016). Limitations include cross-sectional design, limiting causality, and small sample, leaving ethnic-specific interventions unanswered. Extensions, like integrating school tiffins with education, could usefully address big questions on sustainable child health in Nepal.

Conclusion

This study concludes that eating habits profoundly shape the nutritional status of basic level students in Nepalgunj, Banke, with the majority (80%) maintaining normal nutrition based on weight-for-age, while a notable minority (20%) experiences mild-to-moderate malnutrition primarily due to widespread junk food preference (76.8%), irregular breakfast intake, and underlying socio-economic constraints. These patterns emphasize that although strong preventive measures like universal immunization and micronutrient supplementation protect against severe deficiencies, inadequate dietary diversity and limited parental awareness sustain chronic issues such as stunting and underweight conditions, necessitating immediate school-based nutrition interventions in rural Nepal.

The findings advance understanding of the broader challenges to child health in resource-limited settings by elucidating how local factors, ethnic composition, family structure, and occupational dependencies—interact with modern dietary shifts to perpetuate malnutrition. This work aligns with evidence from rural Nepali contexts highlighting persistent undernutrition linked to low dietary diversity and socio-economic marginalization, yet contrasts with urban-focused research indicating milder impacts from greater awareness and access. Limitations, including the cross-sectional design and restriction to four schools, constrain causal attributions and broader generalizability, leaving unresolved how temporal changes or wider regional variations influence these dynamics. Extensions through longitudinal monitoring or integrated school feeding programs could effectively build on these results to inform evidence-based policies, ultimately supporting goals of Nepal for eliminating child malnutrition and fostering a healthier future generation.

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