



Review on Nutritional Status, Dietary Practices and Factors Associated with Malnutrition among School-Age Children in Rural and Urban Areas (District Jaunpur, U.P.)

Asha Singh

Department of Home Science, T.D.P.G. College, Jaunpur (UP)

ARTICLE INFO	ABSTRACT
Article history: Received –05 Sept. 2026 Received in revised form –15 Sept. 2026 Accepted– 28 Sept. 2026 Available online –30 Sept. 2026	Malnutrition is a major nutritional and public-health concern affecting children and adolescents in India. It includes under nutrition, micronutrient deficiencies and over nutrition, with stunting, wasting, underweight, anemia, overweight and obesity representing important manifestations. The nutritional condition of children is influenced by dietary quality, household food security, socioeconomic status, parental education, sanitation, healthcare access and feeding practices. Jaunpur district of Uttar Pradesh provides an important regional context for examining these interrelated determinants. The District Nutrition Profile of Jaunpur prepared using national survey data indicates a substantial burden of child under nutrition and anemia, while more recent national evidence demonstrates the continuing importance of addressing both under nutrition and emerging overweight. This review synthesizes available evidence related to malnutrition, dietary practices, micronutrient deficiencies, socioeconomic determinants and possible Home Science-based interventions relevant to Jaunpur district. Evidence from South Asia indicates that nutritional problems among school-age children and adolescents remain heterogeneous and that inadequate dietary diversity and unhealthy food consumption are important concerns. Nutrition education, dietary diversification, school-based interventions, growth monitoring and family-centered counseling can contribute to improving nutritional outcomes. The review identifies a need for more district-specific research among school-age children in Jaunpur, particularly studies combining anthropometric assessment, dietary diversity, nutritional awareness and socioeconomic variables.
Keywords: Malnutrition, Nutritional status, Dietary practices, School-age children, Jaunpur, Uttar Pradesh, Anemia, Nutrition education,	

1. Introduction:

Nutrition plays a fundamental role in physical growth, cognitive development, immunity, educational performance and overall quality of life. Childhood and adolescence are particularly important periods because nutritional requirements increase during growth and because food preferences and dietary behaviors established during these years may continue into adulthood.

Malnutrition is not restricted to inadequate food intake. According to the World Health Organization (WHO), malnutrition refers to deficiencies, excesses or imbalances in nutrient intake. It includes under nutrition, micronutrient-related malnutrition and overweight, obesity and diet-related non-communicable diseases [1,2]. Under nutrition is commonly assessed through indicators such as stunting, wasting and underweight. Stunting reflects low height-for-age and is generally associated with chronic or recurrent nutritional deprivation, whereas wasting reflects low weight-for-height and is commonly associated with recent nutritional deterioration or illness [3].

The nutritional situation of children in India is characterized by the coexistence of persistent under nutrition, micronutrient deficiencies and an increasing burden of overweight and obesity. This complex situation has been described as a double or triple burden of malnutrition.

School-age children and adolescents have received comparatively less attention than children below five years in nutrition surveillance. However, evidence from South Asia indicates that children aged 5–19 years' experience substantial levels of thinness, underweight, stunting, micronutrient deficiencies and overweight/obesity [4]. Dietary diversity is frequently inadequate, while consumption of fast foods and other energy-dense foods is increasing.

Jaunpur district, located in eastern Uttar Pradesh, is an important setting for examining these issues. District-level nutrition data indicate a considerable burden of childhood malnutrition and anemia. Therefore, a Home Science perspective is useful because it allows nutritional status to be examined together with family food practices, dietary diversity, nutrition awareness, household resources and community-level interventions.

2. Concept of Malnutrition:

Malnutrition represents an imbalance between nutritional requirements and nutrient intake or utilization. It may be broadly classified into three major groups:

2.1. Under nutrition

Under nutrition includes:

- Stunting
- Wasting

- Underweight
- Micronutrient deficiencies

Stunting is assessed through height-for-age, wasting through weight-for-height and underweight through weight-for-age in young children [3].

2.2. Micronutrient-related Malnutrition

Micronutrient deficiencies occur when essential vitamins and minerals are not consumed or absorbed in adequate quantities. Iron deficiency and anemia are particularly important among children and women.

2.3. Overweight and Obesity

Overweight and obesity may develop when energy intake consistently exceeds energy expenditure. Childhood overweight is important because it is associated with increased risk of obesity and non-communicable diseases later in life [1,2].

Thus, nutritional programmes should address both inadequate and excessive nutrition.

3. Nutritional Situation in Jaunpur District:

The NITI Aayog District Nutrition Profile for Jaunpur provides district-level information on nutritional indicators based on national survey data. The profile reports substantial numbers of children affected by stunting, wasting and underweight and also identifies anemia as an important nutritional concern [5].

Table 1. Selected nutrition indicators reported in the Jaunpur District Nutrition Profile

Indicator	Number reported
Stunted children	224,362
Wasted children	81,727
Underweight children	167,940
Severely wasted children	37,265
Children reported as overweight/obese	14,950
Children affected by anaemia	324,950

These figures are presented as reported in the district profile and should not be interpreted as current 2026 prevalence estimates. They are useful for understanding the scale and historical district-level nutritional burden.

The profile also highlights determinants related to infant and young-child feeding, maternal nutrition, education, sanitation and socioeconomic conditions [5].

4. Evidence from National Family Health Survey Data:

The National Family Health Survey provides important evidence regarding nutritional indicators at district level. NFHS-4 and NFHS-5 allow changes over time to be examined, although the survey periods should always be identified when presenting the results.

Available analyses report that the prevalence of stunting among children under five in Jaunpur declined from approximately 48.0% in NFHS-4 to 40.5% in NFHS-5 [6]. This represents an improvement in the reported stunting indicator, although the remaining prevalence indicates that chronic under nutrition continues to require attention.

Historical NFHS-4 district-level data reported approximately 27.3% wasting and 52.7% underweight among children below five years in Jaunpur [7]. These values belong to the 2015–16 survey period and should therefore not be presented as current prevalence.

Table 2. Selected Jaunpur child nutritional indicators reported across survey periods

Indicator	NFHS-4 / earlier evidence	NFHS-5 / later evidence
Stunting	48.0%	40.5%
Wasting	27.3%*	—
Underweight	52.7%*	—

*Historical district-level figures reported for NFHS-4; later figures should be obtained directly from the corresponding NFHS-5 district fact sheet before publication.

The comparison illustrates the importance of using the correct survey year and source when discussing district-level nutritional trends.

5. Malnutrition among School-Age Children and Adolescents:

The nutritional problems of school-age children differ in some respects from those of preschool children. For children aged 5–19 years, BMI-for-age is commonly used to assess thinness, overweight and obesity according to WHO growth references [8].

A major South Asian scoping review identified 296 relevant studies and found considerable variation in under nutrition and overweight/obesity among children aged 5–19 years. The review also reported widespread inadequate dietary diversity, micronutrient deficiencies and substantial consumption of fast foods [4].

A systematic review focused specifically on Indian adolescents similarly identified under nutrition as an important public-health concern and examined socioeconomic, dietary and demographic factors associated with poor nutritional status [9].

These findings are highly relevant to Jaunpur because district-level information on school-age children is less comprehensive than information available for children below five years.

6. Dietary Practices and Nutritional Status:

Dietary practices are among the most important modifiable determinants of nutritional status. A balanced diet should provide adequate quantities of carbohydrates, proteins, fats, vitamins, minerals and water.

Important dietary practices include:

- Regular breakfast consumption
- Adequate meal frequency
- Consumption of pulses and legumes
- Milk and dairy intake
- Consumption of seasonal fruits
- Green leafy vegetables
- Eggs and other protein-rich foods
- Dietary diversity
- Adequate water intake
- Limited consumption of packaged snacks
- Limited consumption of sugar-sweetened beverages

Inadequate dietary diversity may result in sufficient energy intake but insufficient micronutrient intake. Conversely, frequent consumption of energy-dense, nutrient-poor foods may contribute to overweight.

The South Asian literature indicates that unhealthy food consumption and insufficient dietary diversity coexist with under nutrition [4].

7. Dietary Diversity:

Dietary diversity refers to the consumption of foods from different food groups. It is an important indicator of diet quality.

For children in Jaunpur, dietary diversity may be improved through regular inclusion of:

1. Cereals and millets
2. Pulses and legumes
3. Green leafy vegetables
4. Other vegetables
5. Seasonal fruits
6. Milk and dairy products
7. Eggs or other animal-source foods where culturally appropriate
8. Nuts and seeds

Local and affordable foods should form the basis of nutrition education rather than expensive or specialized foods.

8. Anemia and Micronutrient Deficiencies:

Anemia is an important component of the nutritional burden in India. Iron deficiency is a major nutritional cause of anemia, although other nutritional, infectious and medical factors can also contribute.

The Jaunpur District Nutrition Profile identifies anemia as a substantial concern among children and women [5].

Dietary strategies for improving iron intake may include:

- Green leafy vegetables
- Lentils and other pulses
- Chickpeas
- Groundnuts
- Sesame seeds
- Whole grains
- Eggs and animal-source foods where acceptable
- Iron-fortified foods

Vitamin-C-rich foods consumed with plant sources of iron can improve absorption of non-haem iron.

Nutrition education should therefore focus not only on identifying iron-rich foods but also on appropriate food combinations.

9. Socioeconomic Determinants of Malnutrition:

Socioeconomic conditions are important determinants of nutritional status among children because they influence household food security, dietary quality, healthcare utilization and the overall living environment. Families with limited income may face difficulties in purchasing a diverse range of nutrient-rich foods, particularly foods such as milk, eggs, fruits, vegetables and other protein- and micronutrient-rich items. As a result, children may depend more heavily on inexpensive staple foods, which can provide adequate calories but may not always meet their requirements for proteins, vitamins and minerals. In rural and economically vulnerable communities of Jaunpur district, these factors may increase children's susceptibility to different forms of malnutrition.

Parental education and nutrition awareness also have an important influence on children's dietary practices. Parents with better knowledge of nutrition are generally more likely to understand the importance of dietary diversity, balanced meals, appropriate meal frequency, hygiene and the prevention of micronutrient deficiencies. In contrast, limited nutrition awareness may result in monotonous diets, inappropriate food choices or inadequate attention to children's nutritional requirements. Mothers and other primary caregivers play a particularly important role because their knowledge and food-related practices directly influence meal planning, food preparation and feeding behavior within the household.

Household food security is another important socioeconomic factor associated with malnutrition. Seasonal employment, agricultural dependence, unemployment, low wages and rising food costs may affect the regular availability and affordability of nutritious foods. Food insecurity can lead to reduced dietary diversity and irregular consumption of nutrient-rich foods. In addition, poor housing conditions, inadequate sanitation, unsafe drinking water and limited access to healthcare may increase the occurrence of infections, which can further worsen nutritional status by reducing appetite, nutrient absorption and utilization.

Social and cultural practices may also influence children's food choices and nutritional outcomes. Food preferences, traditional dietary practices, restrictions on certain foods and unequal distribution of food within households can affect the nutritional intake of children, particularly girls and other vulnerable members. In some households, lack of time among working parents or caregivers may also encourage greater dependence on commercially prepared or packaged foods. Therefore, socioeconomic determinants should be considered together with dietary, cultural and environmental factors when examining malnutrition among children in Jaunpur district.

Addressing socioeconomic determinants requires a comprehensive and family-centred approach rather than focusing only on individual dietary behaviour. Nutrition education should be combined with measures that improve access to affordable nutritious foods, strengthen awareness among parents, promote kitchen gardens and encourage appropriate use of available government nutrition and health services. Home Science professionals can contribute by providing practical education on low-cost balanced meal planning, food preparation, preservation and dietary diversification using locally available foods. Such integrated approaches can help reduce the socioeconomic inequalities that contribute to malnutrition and support improved nutritional well-being among children in both rural and urban communities of Jaunpur district.

10. Maternal and Family Factors:

Family food practices have a direct influence on children's diets. Parents or caregivers determine food purchasing, preparation, serving and meal timing.

Maternal education is particularly relevant because nutritional knowledge may influence:

- Breastfeeding practices
- Complementary feeding
- Meal planning
- Food hygiene
- Dietary diversity
- Recognition of nutritional deficiencies

The Jaunpur district profile also identifies maternal education, early marriage, sanitation and other underlying determinants as areas relevant to nutrition improvement [5].

11. Rural–Urban Nutritional Differences:

Rural and urban populations may differ considerably in their nutritional status because of variations in food availability, dietary habits, socioeconomic conditions, health services and living environments. In rural areas of Jaunpur district, families may have better access to some locally produced foods such as cereals, pulses, vegetables, milk and seasonal fruits, but limitations in household income, nutrition awareness, access to health services and dietary diversity may affect the quality of children's diets. Dependence on staple cereal-based meals with comparatively limited consumption of protein-rich and micronutrient-rich foods may increase the risk of nutritional deficiencies among vulnerable children.

Urban children may have relatively better access to markets, diverse food products, health facilities and educational resources. However, urbanization can also increase exposure to packaged foods, fast foods, sugar-sweetened beverages and other energy-dense foods. Frequent consumption of such foods, combined with reduced physical activity, may contribute to unhealthy weight gain and micronutrient inadequacy. Thus, urban nutritional problems may include both nutrient deficiencies and increasing risks associated with overweight and obesity.

In Jaunpur district, rural–urban differences should therefore be understood as a complex nutritional transition rather than simply a difference between food availability and food scarcity. Factors such as household income, parental education, food preferences, sanitation, access to healthcare, maternal knowledge and children's dietary behavior can influence nutritional outcomes in both settings. Nutrition interventions should consequently be adapted to local conditions. Rural programmes may emphasize dietary diversification, kitchen gardening, affordable nutrient-rich foods, hygiene and nutrition education, whereas urban programmes may additionally focus on reducing excessive consumption of processed foods, improving healthy food choices and encouraging regular physical activity.

Home Science professionals can contribute significantly to reducing rural–urban nutritional disparities by developing practical and culturally appropriate nutrition education programmes. Demonstrations on low-cost balanced meals, healthy tiffin preparation, food preservation, kitchen gardening, complementary use of locally available foods and appropriate meal planning can help families improve dietary quality. A combination of nutrition education, community awareness, school-based interventions and regular nutritional screening can support healthier dietary practices among children across both rural and urban areas of Jaunpur district.

12. School-Based Nutrition Education:

School-based nutrition education is an important strategy for improving the nutritional knowledge, dietary behavior and overall health of children. Schools provide an effective platform for reaching a large number of children and indirectly influencing their families. Nutrition education can help students understand the importance of a balanced diet, dietary diversity, adequate meal frequency, breakfast consumption and the role of essential nutrients in growth and development. In the context of Jaunpur district, school-based programmes can focus on locally available and affordable nutritious foods such as cereals, pulses, green leafy vegetables, seasonal fruits,

milk, eggs, groundnuts and other protein- and micronutrient-rich foods.

Practical and activity-based approaches can make nutrition education more effective. Schools can organize healthy-tiffin programmes, nutrition quizzes, poster-making competitions, cooking demonstrations, kitchen-garden activities and awareness campaigns on balanced diets and anemia prevention. Students can also be educated about the harmful effects of excessive consumption of packaged snacks, fast foods and sugar-sweetened beverages. Teachers and parents can be involved in these activities so that healthy dietary practices are reinforced both at school and at home.

Regular nutritional screening and growth monitoring can help identify children who may be underweight, stunted, wasted or overweight and may require further assessment. Nutrition education can also be combined with lessons on personal hygiene, safe drinking water, food safety and physical activity. Home Science teachers and nutrition professionals can play an important role by providing practical guidance on low-cost meal planning and healthy food preparation. Therefore, school-based nutrition education can contribute to developing healthy eating habits, preventing different forms of malnutrition and promoting better health and development among school-age children in Jaunpur district.

13. Role of Home Science:

Home Science plays an important role in the prevention and management of malnutrition by integrating knowledge of nutrition, food science, family resource management, child development and community health. In the context of Jaunpur district, Home Science can help families understand the importance of a balanced and diversified diet and encourage the use of locally available, affordable and culturally acceptable foods. Nutrition education can be provided to parents, children and adolescents regarding appropriate meal planning, dietary diversity, healthy food choices and the nutritional requirements of growing children.

Home Science professionals can conduct practical demonstrations on the preparation of low-cost nutritious meals, healthy school tiffin's, iron-rich foods and appropriate food combinations. They can also promote kitchen gardening to increase household access to fresh vegetables and seasonal foods. Education regarding hygienic food preparation, safe drinking water, proper food storage and sanitation can further help reduce nutrition-related health problems.

Schools and communities provide important platforms for Home Science interventions. Nutrition-awareness programmes, counseling sessions, growth-monitoring activities, healthy-food campaigns and cooking demonstrations can encourage families to adopt healthier dietary practices. Particular attention can be given to reducing excessive consumption of packaged snacks, fast foods and sugar-sweetened beverages while promoting nutritious traditional foods.

Thus, Home Science serves as a bridge between nutrition knowledge and its practical application in everyday family life. Through nutrition education, meal planning, food management, community participation and counseling, Home Science can contribute significantly to the prevention of malnutrition and the promotion of healthy growth and development among children in Jaunpur district.

14. Low-Cost Nutritional Strategies Relevant to Jaunpur:
Table 3. Examples of locally feasible nutrition strategies

Nutritional objective	Possible food-based strategy
Increase protein	Pulses, chickpeas, milk, eggs, groundnuts
Improve iron intake	Green leafy vegetables, pulses, sesame, fortified foods
Improve vitamin intake	Seasonal fruits and vegetables
Improve dietary diversity	Combine foods from several food groups
Reduce unhealthy eating	Limit packaged snacks and sugary drinks
Improve food security	Kitchen/community gardens
Improve nutrition awareness	Parent and school education
Improve child monitoring	Regular growth assessment

15. Nutrition Education as a Home Science Intervention:

Nutrition education is an important Home Science intervention for preventing malnutrition and promoting healthy dietary practices among children and families. It helps individuals understand the importance of a balanced diet, appropriate meal planning, dietary diversity and the nutritional value of commonly available foods. Through nutrition education, families can learn how to select, prepare and serve nutritious meals according to their economic resources and cultural food practices. In the context of Jaunpur district, emphasis can be given to the use of locally available and affordable foods such as cereals, pulses, green leafy vegetables, seasonal fruits, milk, eggs, groundnuts and other nutrient-rich foods.

Nutrition education can also contribute to the prevention of micronutrient deficiencies, particularly iron deficiency and anemia. Families may be encouraged to include iron-rich foods such as green leafy vegetables, pulses, chickpeas, sesame seeds and fortified foods in regular meals, along with vitamin-C-rich foods to improve iron absorption. Regular nutrition counseling can help families recognize unhealthy dietary patterns and adopt sustainable food practices. Thus, Home Science-based nutrition education can serve as an important community-level strategy for improving dietary behavior, preventing malnutrition and promoting healthy growth among children in Jaunpur district.

16. Recommendations:

Malnutrition among children in Jaunpur district requires a comprehensive and family-centred approach that combines nutrition education, dietary improvement, health awareness and regular nutritional monitoring. Families should be encouraged to provide children with balanced and diversified diets containing cereals, pulses, green leafy vegetables, seasonal fruits, milk and other affordable protein-rich foods. Particular attention should be given to iron-rich foods to help reduce the risk of anemia and other micronutrient deficiencies. Parents and caregivers should be

educated about appropriate meal frequency, breakfast consumption, food hygiene and the nutritional requirements of growing children. Schools can play an important role by organizing regular nutrition-awareness programmes, healthy-tiffin activities, kitchen-garden demonstrations and nutrition screening. Excessive consumption of packaged snacks, fast foods and sugar-sweetened beverages should be discouraged, while children should be encouraged to develop healthy eating habits and remain physically active. Home Science professionals can provide practical demonstrations on low-cost balanced meal planning, food preparation, preservation and household nutrition management.

17. Conclusion:

Malnutrition in Jaunpur district represents a multidimensional nutritional concern. Available district-level evidence demonstrates a substantial burden of childhood under nutrition and anemia, while broader Indian and South Asian evidence indicates that micronutrient deficiencies, poor dietary diversity and increasing overweight/obesity also require attention.

Historical NFHS evidence suggests improvement in some nutritional indicators in Jaunpur, including stunting; however, older survey estimates should not be interpreted as current prevalence. More recent and age-specific local data are needed, particularly for school-age children and adolescents.

From a Home Science perspective, effective prevention requires a family- and community-oriented approach combining nutrition education, dietary diversification, affordable meal planning, food hygiene, kitchen gardening, school-based programmes and nutritional counseling. Future research in Jaunpur should integrate anthropometry, dietary assessment, socioeconomic variables and nutrition awareness to develop locally appropriate interventions.

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