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Assessing the Nutritional Value and Transition of Traditional Diets in Uttarakhand: Implications for Health and Culture

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Abstract

Uttarakhand is a hilly state located in the central Himalayas, distinguished from other regions by its unique topography, geographic features, flora and fauna, land use practices, and socioeconomic conditions. The lifestyle of its residents also varies significantly. Classified under Zone II of the Himalayan agro-climatic zones, Uttarakhand is further subdivided into various zones characterized by primarily rainfed agriculture, red to dark soils, and annual rainfall ranging from 1200 to 2500 mm. The region supports a variety of traditional crops, including cereals, millets, pulses, oilseeds, and vegetables. Many of these crops are recognized as super foods, previously considered neglected and underutilized species (NUS). However, there has been a decline in interest regarding their cultivation. Traditional foods, deeply rooted in local culture, significantly shape the identity and social, cultural, religious, and economic practices of the community, passed down through generations for sustainable use. In remote areas, indigenous peoples often rely on traditional foods sourced from their local environment. Given Uttarakhand's rich cultural and ecological diversity, it offers a wide array of traditional products. Nutrient-rich foods traditionally used in the region could play a vital role in addressing malnutrition issues. This study seeks to evaluate the potential of these traditional food items in combating malnutrition in Uttarakhand.

Keywords: Nutritional value, Traditional Himalayan Diet, Drivers of Nutrition Transition.

Introduction

In India, agricultural growth has enabled the country to achieve self-sufficiency in many food grains. However, due to population growth, the demand for food is rising. Following the 2021 population survey, it was estimated that India's population would reach approximately 1.39 billion, with around 445 million people-about 35%-living on just \$1.25 a day. Alarmingly, half of pregnant women in India are anemic, and among children under five, 74% are reported to be anemic, with 43% classified as underweight. Thus, ensuring food and nutritional security for households remains a significant challenge. According to the 2020 Global Hunger Index report, 14% of India's population is undernourished, and there are serious concerns regarding child health, with a stunting rate of 37.4% and a wasting rate of 17.3% among children under five (Grebmer *et al.*, 2020). Uttarakhand, one of India's Himalayan states known for its stunning landscapes and referred to as "The Land of the Gods," had a population exceeding one crore according to the 2011 census, making it the 20th most populous state in the country. In the 'Healthy

States Progressive India' report by NITI Aayog, Uttarakhand ranked 17th out of 21 states, highlighting concerns regarding its performance in areas such as sex ratio, infant mortality rate (IMR), and neonatal mortality rate (NMR). The National Family Health Survey (NFHS) 4, conducted in 2015-16, revealed that Uttarakhand faced significant challenges in child nutrition, with stunting at 33.5%, underweight at 26.6%, and wasting at 19.5% among children under five (International Institute of Population Sciences, 2017). This underscores the urgent need for improved nutrition for all, particularly since child nutrition relies heavily on the care provided by family elders.

Countries undergoing economic transition often experience a corresponding nutrition transition, characterized by a growing preference for highly processed foods and increasingly sedentary lifestyles (Popkin, 2004). The Himalayas, known for their breathtaking landscapes and rich cultural heritage, are home to a variety of traditional foods that are integral to local life. However, like many regions around the world, the Himalayas are facing a nutrition transition, shifting from

traditional diets to more modern, often processed options. This shift has significant implications for health, cultural identity, and sustainability.

The unique geography and cultural heritage of the Himalayas have long influenced dietary practices, reflecting the region's challenging environment and deep-rooted traditions. Traditional Himalayan diets, which consist of locally sourced, nutrient-rich foods, are increasingly being supplanted by modern, processed alternatives. Driven by various socio-economic and cultural factors, this transition poses serious challenges for health, cultural preservation, and environmental sustainability. This analysis critically explores the ongoing nutrition transition in the Himalayas, focusing on its drivers, impacts, and potential solutions.

Objective of Study

Objective of this study to assessing the Nutritional Value and Transition of traditional Diets in Uttarakhand hills.

Research Methodology

Data for the presented research study has been collected from secondary sources. Secondary sources include reports of various commissions and food policies, census reports, historical records and research papers and books. Descriptive research, empirical and content analysis method have been used to study the Traditional Himalayan Diet and Nutritional value and journey of traditional foods of Uttarakhand.

Drivers of Nutrition Transition

Several factors are accelerating the nutrition transition in the Himalayas:

- **Economic Development:** As economic conditions improve, there is increased access to and consumption of processed foods. Rising incomes have led to greater availability of Western-style fast foods and packaged snacks, which are often high in sugar, salt, and unhealthy fats.
- **Urbanization:** Migration from rural to urban areas has led to dietary changes. Urban lifestyles prioritize

convenience, leading to a shift from traditional cooking to the consumption of pre-packaged and fast foods.

- **Globalization:** The global spread of food culture has introduced new dietary patterns and food products to the Himalayas. This includes an influx of international food brands and dietary trends that often overshadow traditional practices.
- **Cultural Shifts:** Younger generations are increasingly adopting modern lifestyles, which often involves a departure from traditional dietary practices. The influence of global media and changing

Traditional Himalayan Diet: Characteristics and Significance

Traditional diets in the Himalayan region are diverse and adapted to the local environment. Key components include:

- **Whole Grains:** Staple grains like barley, millet, and buckwheat are integral, offering a rich source of energy and essential nutrients.
- **Legumes:** Pulses such as lentils and beans provide a primary protein source.
- **Vegetables and Fruits:** Seasonal and often home-grown, these foods contribute vital vitamins and minerals.
- **Fermented Foods:** Foods such as fermented dairy products and vegetable pickles are common, promoting gut health and nutrient absorption.
- **Animal Products:** In some regions, products like yak milk and cheese are staple sources of protein and fat.

These traditional foods are not only nutritionally balanced but also well-suited to the cold, high-altitude environment, providing warmth and sustained energy.

Nutraceutical and Medicinal Properties of a Few Important Native and Naturalized Crops of Uttarakhand

Nutraceutical and medicinal properties of a few important native and naturalized crops of Uttarakhand hills are documented in Table given below

Table 1: A few important crops of Uttarakhand hills and their food, nutraceutical and medicinal properties.

Traditional Food	Nutritional Components	Health Benefits
Mandua (Finger Millet)	High in fiber, calcium, iron, magnesium, phosphorus, B vitamins	Supports bone health, improves digestion, regulates blood sugar, good for heart health.
Kedli (Buckwheat)	High in protein, fiber, magnesium, iron, antioxidants (quercetin)	Improves heart health, regulates blood pressure, boosts metabolism, supports immune function
Jhangora (Barnyard Millet)	High in fiber, antioxidants, B vitamins (especially niacin and riboflavin)	Aids in digestion, stabilizes blood sugar, helps with weight management, promotes healthy skin.
Chana (Chickpeas)	Rich in protein, fiber, iron, folate, manganese, zinc	Supports muscle growth, improves digestion, stabilizes blood sugar, strengthens immune system.
Bhaat (Rice)	High in carbohydrates, small amounts of protein, small quantities of vitamins and minerals (e.g., B1, B3, magnesium)	Provides energy, good for overall health, and can be easily digested.
Gahat (Horse Gram)	High in protein, fiber, calcium, iron, antioxidants (flavonoids)	Enhances immunity, supports kidney health, aids in digestion, lowers cholesterol.
Aloo (Potato)	Rich in carbohydrates, potassium, vitamin C, B6	Provides energy, aids in muscle function, supports heart health, boosts immune function.
Saag (Leafy Greens)	High in vitamins A, C, K, calcium, iron, and folate	Supports eye health, enhances skin health, strengthens bones, boosts immunity.
Pahadi Dahi (Fermented Yogurt)	High in protein, calcium, probiotics, vitamin B12	Improves gut health, enhances digestion, strengthens bones, boosts immunity.
Jaggery (Gur)	High in iron, calcium, potassium, magnesium, antioxidants	Improves digestion, detoxifies the liver, provides energy, strengthens immunity, prevents anemia.

Nettle (<i>Urtica dioica</i>)	Rich in iron, calcium, vitamin C, potassium, fiber	Improves iron absorption, supports bone health, boosts immune function, reduces inflammation.
Bamboo Shoots	High in fiber, vitamin C, antioxidants (flavonoids), low in calories	Improves digestion, supports heart health, detoxifies the body, aids in weight loss.
Litchi (Lychee)	High in vitamin C, copper, potassium, antioxidants	Boosts immunity, improves skin health, aids digestion, promotes heart health.
Pahadi Roti (Chapati made from local grains like Mandua, Jhangora)	High in fiber, iron, protein, and essential fatty acids	Provides sustained energy, supports digestive health, good for heart and muscle function.
Sikhand (Fermented Radish)	Rich in fiber, vitamin C, potassium, antioxidants	Improves digestion, supports immune function, detoxifies the body, reduces inflammation.

Nutritional Value and Journey of Traditional Foods of Uttarakhand Hills

Nutrient-rich traditional food items could play a key role in addressing malnutrition issues. This study aims to evaluate the effectiveness of these food items in combating malnutrition in the Uttarakhand region. Currently, there is a lack of comprehensive information on raw materials and the various processing steps involved in preparing traditional recipes. Although alternative recipes exist, their production is limited in the area. To build trust and establish them as market brands, these products need to be recognized with geographical designations. Alongside the geographical indications for traditional crafts and agricultural products, there has been a notable increase in the recognition of traditional foods in Uttarakhand. However, the younger generation in rural communities shows less interest in maintaining traditional knowledge, influenced by modern cultural trends. It is primarily the elders who have preserved the knowledge of using these crops and spices in their recipes. This study focuses on traditional foods consumed by Scheduled Communities in selected areas of Uttarakhand, where Garhwali and Kumaoni cuisines dominate. The dishes are simple, made from locally grown ingredients, and are typically not reliant on complex spices.

Conclusion

Nutrient-rich traditional food items could play a significant role in addressing malnutrition. This study aims to evaluate the effectiveness of these foods in tackling the malnutrition issues faced in Uttarakhand. Located in the central Himalayas, Uttarakhand is distinguished from other regions by its unique topography, geographic features, flora and fauna, land use practices, and socioeconomic conditions, all of which contribute to the diverse lifestyles of its inhabitants. While many alternative recipes exist, their production remains limited in the region. To build trust and establish these products as market brands, they need to be recognized with geographical designations. There has been an increase in geographical indications for traditional foods in Uttarakhand, alongside those for local crafts and agricultural products. However, the younger generation in rural areas shows diminishing interest in traditional knowledge, influenced by modern cultural trends. It is primarily the elders who continue to preserve the expertise related to the use of these crops and spices in traditional recipes and diet. There is a need to support these traditional systems in order to feed local communities and at the same time address the traditional food-based approach of community nutrition and health. An active partnership is essential to collaboratively establish a research and advocacy agenda that supports agro biodiversity and revitalizes diverse local food systems and landscapes. This collaboration should involve indigenous peoples, local communities, and their key allies within the broader context

of indigenous food sovereignty. It is important to reevaluate current food and nutrition policies related to health and agriculture, and to create integrated strategies that address food security, nutrition, and health. Additionally, ongoing advocacy efforts are necessary to educate stakeholders across various sectors. Establishing food composition databases is crucial for effective advocacy and for the development of cross-sectoral policies and programs.

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