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Popular Article

Interrelationship of Dietary Diversity and under nutrition-A review

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Abstract

Dietary habit indicates the type, variety, quality of food intake in a particular geographical region. It is highly dependent on the cropping system. Dietary habit with maximum diversity of food is found to be healthy and has greater significance in human life as it determines health and nutritional status. It also affects the quality of life of its population. It has been observed that the underfed mothers tend to have smaller babies who have very little reserves of nutrients at birth. Inadequate food during infancy results in stunted growth. Unfortunately, when such child becomes mother, they further give undernourished child and the vicious cycle of under nutrition continues. Dietary diversity is a critical determinant of nutritional status, especially among underweight preschool children who are at risk of malnutrition. This article reviews existing literature on dietary diversity highlighting its significance as an important factor influencing under nutrition and strategies to improve it. By examining various studies and their findings, this review aims to provide a comprehensive understanding of the role of dietary diversity in enhancing the health and development of undernourished preschool children.

Key words: Under nutrition, Dietary Diversity, Food consumption pattern, Stunting.

Introduction

Underweight preschool children remain a significant public health issue globally with profound implications for their growth and development. **Underweight** is a condition in which a person's body weight is lower than what is considered healthy for their age, height, and gender (Kumari,2024). It's typically defined by a **Body Mass Index (BMI) below 18.5** for adults, while for children, it is assessed using growth charts and BMI-for-age percentiles. **Dietary diversity** refers to the variety of different foods or food groups consumed over a given period, typically a day or

week(Kumari *et al* 2021) Under nutrition can take several forms, including wasting, stunting, being underweight, and micronutrient deficiencies, each with its own set of health hazards and long-term implications (Black et al 2013). Wasting, defined by a low weight-for-height ratio, shows acute malnutrition and is connected with an imminent risk of death, particularly during times of food instability or disease epidemics. Stunting, defined as a low height-for-age ratio, is caused by persistent malnutrition throughout critical times of growth and development, which can often result in irreparable physical and cognitive problem. Underweight, defined as a low weight-for-age measurement, is a composite indicator that can indicate both acute and chronic malnutrition without distinguishing between the two (UNICEF 2013).

Dietary diversity, which refers to the variety of different foods or food groups consumed over a specific period is key indicator of dietary quality and nutritional adequacy() Dietary diversity is essential for ensuring adequate nutrients intake, which is crucial for the growth, development, and overall health of preschool children. Studies (Arimond and Ruel, 2004) indicate that dietary diversity is strongly associated with better nutritional status and reduced risk of under nutrition They found a positive correlation between dietary diversity and child nutritional status across multiple demographic and health surveys, emphasizing the importance of a varied diet in preventing under nutrition. Steyn et al. 2006 reviewed dietary diversity score and food variety as indicators of dietary adequacy among children, concluding that these measures are good predictors of nutrient intake and overall diet quality and strongly advocated that increased dietary diversity has been linked to improved growth and developmental outcomes in children .Moursi et al. (2008**)** conducted a research in Madagascar demonstrated that dietary diversity scores could predict the micronutrient density of diets among young children, highlighting the link between diverse diets and micronutrients adequacy. Black et al. (2008) stated that the global review on maternal and child under nutrition underscored the role of dietary diversity in improving child health outcomes and reducing the prevalence of malnutrition. A varied diet helps in meeting the daily requirements of essential vitamins, minerals, and other nutrients reducing the risk of nutrient deficiencies and associated health problems. A diet which is sufficiently diverse may reflect nutrient adequacy(Kennedy et al,2009).Evidences also suggest that early childhood deficit can lead to severe lifelong economic, health and cognitive repercussions (Spears, 2012). German food diversity guidelines suggests that “Enjoy the great variety of food, there is no healthy, unhealthy or forbidden food “.It is the combination of food ,quantity and selection of food that matters.

According to FAO, dietary diversity is a qualitative measure of food consumption that reflects household access to a variety of food. The dietary diversity score is a simple count of food groups that a household/individual consumed over the preceding 24 hour .The FAO has provided a

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standard questionnaire of universal applicability from which various dietary diversity scores can be calculated. As such it is not culture, population and location specific and therefore prior to using it in field it will be necessary to adapt it in field. The questionnaire included all types of food items generally consumed by the respondents belonging to the respective region of the respondent. They not only include foods prepared and consumed within the household but also those that were consumed outside.

The data on production and consumption of various food groups over past two decades in India showed that per capita consumption in cereals have decreased, is stagnant in pulses and has doubled in edible oils, vegetables, eggs, fish and meat .The multivariate regression analysis data of 28 states has suggested that dietary diversity significantly increases with production diversity and per capita income. Literature also suggest that increased per capita income, level of poverty, urbanization, education and changing consumer behaviour are the major demand pull factors besides agricultural production diversity(Venkatesh et al,2018).

Determinant of dietary diversity

Several factors affect dietary diversity among preschool children, including socioeconomic, cultural, and environmental determinants. Kennedy et al., 2011 showed that socio economic status i.e higher household income and parental education levels are associated with greater dietary diversity .Similarly food security is directly linked with dietary diversity. According to Moursi et al., 2008 food insecure households often struggle to provide a varied diet, leading to lower dietary diversity .Dietary diversity is also determined by cultural practices**.** Arimond and Ruel, 2004 stated that traditional dietary habits and cultural beliefs can influence the variety of foods consumed . Another determinant is maternal Knowledge**.** Mothers with better nutritional knowledge are more likely to offer diverse diets to their children(Black et al.., 2013). However there are certain major challenges in ensuring Dietary Diversity. These are economic constraints i.e limited financial resources restrict access to a variety of nutritious foods, impacting dietary diversity.

Lack of Nutrition Education(insufficient knowledge about the importance of a varied diet) can hinder dietary improvements. Moreover, food availability or seasonal variations and poor infrastructure can limit the availability of diverse foods. Cultural norms and food preferences may limit the inclusion of certain food groups in children's diets.

Conclusion:

To ensure dietary diversity following are the interventions:

A. **Nutrition Education Programs:** Educating parents, especially mothers, about the importance of dietary diversity and how to incorporate a variety of foods into children's diets.

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B. **Food Security Interventions**: Implementing programs to improve household food security, such as food assistance, subsidies, and agricultural support.

C. **Enhancing Food Availability**: Improving infrastructure and market access to ensure a steady supply of diverse foods throughout the year.

D. Culturally Sensitive Approaches**:** Designing nutrition interventions that respect and incorporate local cultural practices.

E. Community- Based Programs**:** Engaging community leaders and groups to promote dietary diversity and support local food production initiatives.

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