

## Opinions of Early Childhood Development Pediatricians Regarding Nutrition for Cognitive Development of Children in Gilgit-Baltistan



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**Abstract:** *This research explores the opinions of early childhood development pediatricians in Gilgit-Baltistan regarding nutrition and its impact on the cognitive development of children. Recognizing the pivotal role of nutrition in the formative years, the study delves into the perspectives of pediatric experts to gain insights into their beliefs and recommendations. Main objective of the study is to investigate the perspectives of pediatricians regarding the significance of food and nutrition in the cognitive development of young children. The qualitative research paradigm is employed to conduct in-depth interviews with pediatricians, allowing for a thorough examination of their opinions on the subject. The study takes place in the unique cultural and geographical context of Gilgit-Baltistan, a region characterized by diverse ethnic groups and languages. Through purposive sampling, three pediatricians are selected based on their relevant experience and expertise. The data collection involves open-ended interviews, providing a platform for the pediatricians to articulate their views on the significance of nutrition for cognitive development. The findings reveal a consensus among the pediatricians about the critical role of a balanced diet comprising proteins, carbohydrates, vitamins, and minerals in fostering cognitive skills in children. Recommendations are extended to school administrators, ECD coordinators, parents, and future researchers based on the insights gained. In conclusion, the study emphasizes the need for comprehensive awareness programs and strategies to ensure optimal nutrition for children in their early developmental stages, contributing to their cognitive well-being and long-term health.*

**Keywords:** Pakistan,

### Introduction

The significance of nutrition in the cognitive development of young children at the Early Childhood Development (ECD) level cannot be overstated. As underscored by UNESCO (2019), the common perception that a healthy body nurtures a healthy mind reinforces the fundamental right of each individual to proper nutrition. This is particularly crucial in the context of young learners, where adequate nutrition plays a pivotal role in academic

achievements and cognitive growth (Ross, 2010). When children experience improper nutrition, they may face challenges in reaching their full potential, as noted by Ross (2010). Mahmoud (2020) emphasizes the essential relationship between proper nutrition and mental performance, highlighting its impact not only on academic scores during childhood but also on future cognitive capacities.

The building blocks of proper nutrition for brain development, including proteins, vitamins (such

as B12), irons, and zinc, are crucial elements during early childhood (Dewey, 2014). A balanced diet aids in concentration and effective learning, as stated by Ross (2010). Erickson's (2006) research identifies five key components, such as proteins, carbohydrates, vitamins, minerals, and calcium, essential for proper brain function. Proteins, derived from meat, fish, milk, and cheese, play a vital role, as do carbohydrates from grains, fruits, and vegetables, providing glucose—the brain's energy source. The study aims to explore the perspectives of Early Childhood Development coordinators and Pediatricians on the vital role of nutrition in cognitive development (Wilder & Research, 2014). Moreover, nutritional deficiencies can lead to various health issues, affecting mental well-being. Ross (2010), citing Wolpert and Wheeler (2008), suggests that diets high in trans fats and saturated fats negatively impact cognition. Junk foods, rich in trans fats, affect brain synapses and can contribute to mental disturbances. Additionally, the presence of essential vitamins like B1, B6, B9, and B12 in the diet has direct implications for cognitive performance, emphasizing the intricate relationship between nutrition and cognitive development (Vasiliki, Eleni, & Athina, 2019).

In summary, this study aims to shed light on the critical role of nutrition in the cognitive development of young children at the ECD level, drawing insights from the perspectives of coordinators and Pediatricians. The goal is not only to contribute to academic discourse but also to provide valuable guidance for parents and ECD teachers in formulating effective food plans for the holistic development of young minds. It is widely acknowledged that a sound body is integral to a sound mind, and the right to proper nutrition is considered a fundamental entitlement for every individual (UNESCO, 2019). Adequate nutrition holds paramount significance in students' academic achievements and cognitive development. When children lack proper nutrition, they face challenges in reaching their full potential (Ross, 2010). The correlation between proper nutrition and mental performance in young children is crucial not only for academic success but also for their later

life (Mahmoud, 2020). Essential nutrients like proteins, vitamins (including B12), irons, and zinc play a pivotal role in brain development and functions during early childhood (Dewey, 2014).

Erickson (2006) identifies five key components, supported by research, that contribute to proper brain function. Proteins, found in foods such as meat, fish, milk, and cheese, are essential. Carbohydrates, sourced from grains, fruits, and vegetables, are broken down into glucose, providing the brain with energy. Vitamins and minerals, including A, C, E, and B complex vitamins, manganese, and magnesium, are crucial for optimal brain function. Calcium plays a vital role in message transmission and the thinking process.

The primary objective of this study is to highlight the perspectives of Early Childhood Development (ECD) coordinators and Pediatricians regarding the significance of food and nutrition for the cognitive development of young children. Additionally, the research aims to provide valuable insights for parents and ECD teachers to formulate effective food plans for their young charges (Wilder and Research, 2014). Poor nutrition not only affects students physically, leading to issues such as headaches and stomachaches, but also has the potential to disturb mental well-being. Diets rich in trans fats and saturated fats, as suggested by Ross (2010) citing Wolpert and Wheeler (2008), adversely impact cognition. The consumption of unwanted items and fast foods, often containing trans fats, can affect brain synapses. Certain vitamins, such as B1, B6, B9, and B12, are emphasized for their roles in cognitive performance, memory protection, and neurotransmitter synthesis. The recent focus on the importance of food and nutrition for enhancing brain function in young children is aligned with the present study's objective to underscore the significance of these factors. Furthermore, the study seeks to investigate the intricate relationship between nutrition and cognitive development.

Food is a complex mixture of components categorized into nutrients and non-nutrients. Nutrients, further classified into macronutrients and micronutrients, include essential elements

like vitamins and minerals crucial for proper mental development. Macronutrients, such as carbohydrates, proteins, and fats, are required in substantial amounts (Yiheng Chena, 2018). Nutritional deficiencies can significantly impact the cognitive development of young children, with fatty acids playing a vital role in intellectual tissue. Iron is crucial for mental development, as its deficiency can lead to disruptions in attention, memory, and school performance. Similarly, deficiencies in zinc and vitamins can affect brain function and memory (Vasiliki, Eleni, & Athina, 2019). Understanding these intricate connections is essential for promoting optimal cognitive development in young children through proper nutrition.

#### **Statement of Problem:**

The optimal cognitive development of children during early childhood is a critical aspect that significantly influences their lifelong well-being. In the region of Gilgit-Baltistan, where unique geographical and cultural factors may impact dietary practices, it is essential to understand the opinions and practices of pediatricians regarding nutrition for cognitive development. This research aims to investigate the perspectives of pediatricians in Gilgit-Baltistan on the nutritional aspects influencing cognitive development in early childhood, identify existing gaps in knowledge or practices, and propose recommendations for enhancing the understanding and implementation of nutrition interventions for optimal cognitive outcomes in children.

1 Investigate the perspectives of pediatricians regarding the significance of food and nutrition in the cognitive development of young children.

2 Examine the opinions pediatricians concerning the types of food that may adversely affect the cognitive development of young children.

3 To assess the existing awareness and understanding among pediatricians in Gilgit-Baltistan regarding the role of nutrition in early childhood cognitive development.

#### **literature review**

A well-structured literature review is essential

for providing a foundation for educational research, offering valuable insights, and ensuring the validity and reliability of the study. This chapter aims to briefly introduce the opinions of Early Childhood Development pediatricians regarding the significance of food and nutrition for the cognitive development of young children. Several key studies contribute to our understanding of the intricate relationship between nutrition and cognitive development.

#### **The Role of Food and Nutrition in Cognitive Development of Young Children**

Kapur (2020) emphasizes the pivotal role of proper nutrition in the effective growth and mental development of young children. The combination of a balanced diet and physical exercise significantly contributes to maintaining a healthy weight, reducing the risk of chronic diseases, and improving overall health (Importance of Good Nutrition, 2020). Karavida, Tympa, and Charissi (2019) highlight the critical importance of nutrition during the first three years of a child's life, a period crucial for intellectual development. Nutritional factors play a key role in the development of cognitive, motor, and socio-emotional skills throughout life. For instance, iron deficiency anemia has been linked to lower academic performance, emphasizing the essential role of iron in brain functions (Blanton, Green, & Kretsch, 2013).

#### **Types of Food that Sharpen Cognitive Skills**

Erikson (2006) identifies five key components crucial for proper brain function. Protein, found in meat, fish, milk, and cheese, plays a role in neurotransmitter production, contributing to effective communication between brain cells. Carbohydrates, sourced from grains, fruits, and vegetables, provide glucose, the brain's energy source. Additionally, Erickson underscores the importance of vitamins, minerals, and fats, especially omega-3 fatty acids found in nuts and fish, which are vital for synaptic plasticity and overall brain health. Research by Gonez-Pinilla, cited by Wolpert and Wheeler, further supports the significance of omega-3 fatty acids in memory and learning. Omega-3 fatty acids positively influence synaptic plasticity, contributing to the expression of molecules

associated with learning and memory at synapses.

### **Functions of Foods**

Mudambi (2007) categorizes the functions of food into three categories: physiological, social, and psychological. Food provides essential energy for various bodily functions, including heart beating, temperature regulation, muscle contraction, and waste removal. Early childhood stages demand particular attention to delivering effective nutrients for optimal growth and development. Nutrition plays a dominant role in the social fabric of human life, representing love, friendship, and happiness. Food-sharing rituals during celebrations and gatherings contribute to the creation of peace and equality in society. Food serves to satisfy emotional needs, aiding individuals in reducing psychological problems and fostering a sense of well-being. Shared meals contribute to the creation of bonds such as friendship and care. Ross (2010) reinforces the idea that proper nutrition is crucial for both physical and mental development, and poor nutritional quality can significantly impact cognitive skills. Swaminathan (2020) distinguishes between macronutrients and micronutrients, emphasizing their importance in human health.

Carbohydrates, proteins, and fats are integral components of a diet, providing essential nutrients for life support. Carbohydrates, sourced from grains, fruits, and vegetables, supply glucose for brain energy, while proteins and fats play crucial roles in various bodily functions, including tissue construction and energy storage.

Vitamins and minerals, essential in trace amounts, are crucial for the proper functioning of proteins and enzymes. The importance of specific minerals like calcium, iron, iodine, zinc, and others in cognitive development is underscored by their roles in cell construction, regulation of physiological functions, and the maintenance of overall health.

### **Foods to Avoid in Early Ages**

Kramer and Kakuma (2012) outline specific foods to avoid during early childhood.

**Salt:** Due to immature kidneys, salt should not be added to the diets of babies, as excessive sodium intake can lead to health issues.

**Sugar:** The addition of sugar to foods and drinks during early childhood can contribute to the development of a sweet tooth and increase the risk of tooth decay.

**Honey:** Honey, although a tasty treat, should be avoided in children under the age of one due to potential bacterial contamination.

**Nuts:** It is recommended to introduce peanuts and peanut butter cautiously to prevent allergic reactions in early childhood.

In conclusion, this literature review establishes a foundational understanding of the opinions of pediatricians regarding the critical link between nutrition and cognitive development in young children. The studies reviewed emphasize the importance of a balanced diet, highlighting specific nutrients and their roles in cognitive functions. The next chapters will build upon this literature to investigate the perspectives of pediatricians in Gilgit-Baltistan and propose recommendations for enhancing early childhood nutrition for optimal cognitive outcomes.

## **RESEARCH METHOD AND METHODOLOGY**

The aim of this research was to investigate the perspectives of Early Childhood Development (ECD) pediatricians on the significance of food and nutrition for the cognitive development of young children in Gilgit-Baltistan. A qualitative research paradigm was adopted to allow an in-depth and descriptive exploration of the opinions of ECD coordinators and pediatricians.

### **Data Collection Tool**

#### **Interview Protocol**

Given the nature of the study, the primary data collection tool utilized was an interview protocol. Qualitative research, as defined by Beverley and Hancock (2009), aids in understanding people's opinions on specific phenomena. Mason (2002) argues that qualitative research provides a diverse perspective on the educational world, making it suitable for exploring the opinions of ECD

experts.

### **Interview**

Open-ended interview protocols were employed as the primary tool for data collection. A total of three interviews were conducted with each pediatrician. One formal and in-depth interview, lasting one hour, was followed by probing sessions to delve deeper into the insights obtained during the initial interview. Interviews were conducted with pediatricians, along with three male pediatricians, all conducted in their respective offices.

According to Alshenqeeti (2014), questioning is essential as it allows interviewees to express their thoughts and feelings, providing a comprehensive understanding of the phenomena. The interview sessions facilitated the exploration of viewpoints on the importance of food and nutrition for cognitive development among ECD coordinators and pediatricians.

### **Research Setting:**

Gilgit, Gilgit-Baltistan

The research was conducted in Gilgit, situated in the North Eastern region of Pakistan, now part of Gilgit-Baltistan. This region, with its diverse cultures, ethnic groups, and languages, served as the backdrop for the study. The research involved pediatricians from various hospitals in Gilgit.

### **Population and Sampling Procedures**

The population comprised three pediatricians from various hospitals in Gilgit-Baltistan. Purposeful sampling was employed to ensure the relevance of participants to the research questions and objectives. Criteria were established for the selection of pediatricians, focusing on their experience and training in the respective fields.

### **Data Analysis:**

Thematic Analysis

Qualitative research approach and Gibson's (2017) model of data analysis were utilized. The analysis involved organizing and finding connections in the data, developing themes, and

triangulating data from various sources and methods. Thematic analysis was employed to identify patterns and themes within the collected data.

### **Ethical Consideration:**

Ethical considerations were paramount throughout the research process. Informed consent was obtained from participants, ensuring transparency about the study's purpose. Participant identities and data were treated confidentially, using code words instead of names. The researcher maintained ethical standards in data collection, analysis, and reporting, upholding the principles of research ethics.

### **Data Analysis and Findings**

This chapter presents the data analysis and findings of the study, which aimed to explore the opinions of Early Childhood Development (ECD) pediatricians regarding the importance of food and nutrition in the cognitive development of young children in the early stages of childhood.

### **Data Analysis Method:**

Thematic Analysis

Thematic analysis was employed for data analysis, aligning with the qualitative nature of the study. The identification of themes was guided by insights gained during the literature review.

### **ECD Coordinators' Perspectives on Foods for Cognitive Development**

ECD coordinators highlighted various foods deemed beneficial for cognitive development in young children. The respondents emphasized the significance of a balanced diet, including:

**Proteins** Eggs were highlighted for concentration, while yogurts and grains were emphasized for brain cell functions.

**Fruits and Vegetables** Antioxidant-rich fruits like bananas, apples, and mangoes were recommended for overall mental development.

**Carbohydrates** Rice, bread, potatoes, and foods rich in omega-3 fatty acids were mentioned for mental skills and memory protection.

According to the World Health Organization (2013), proper nutrition has both short-term and long-term advantages, contributing to growth, concentration improvement, and supporting children's learning.

### **Pediatricians' Recommendations for Cognitive Development Foods**

Pediatricians suggested foods for cognitive development, emphasizing:

**Dry Fruits** Mentioned to enhance cognitive skills, with an emphasis on walnuts and almonds.

**Proteins** Meats, fish, eggs, nuts, and beans were highlighted for cognitive development, containing minerals and vitamins.

**Fruits and Vegetables** Apples, mangoes, and greens were recommended for brain development.

These recommendations align with Banerjee (2020) and Krans (2012), emphasizing the importance of a stable diet containing essential nutrients.

### **Foods Pediatricians Suggest Avoiding in Early Ages**

Pediatricians recommended avoiding certain foods for young children, including:

**Tea, Junk Food, and Flavored Artificial Items** Highlighted as items to be avoided for appropriate cognitive development.

**High Salt and Sugar Foods:** Advised against, along with the avoidance of frying foods. These suggestions are in line with the literature, emphasizing the negative impact of junk foods and high salt and sugar content on children's health (Vakili et al., 2015).

### **Importance of Breastfeeding According to Pediatricians**

Pediatricians unanimously stressed the importance of breastfeeding for young children, noting its role in providing essential nutrients, vitamin A, antibodies, and contributing to the child's normal body weight. Breastfeeding was highlighted as the first antibiotic for children, protecting against asthma, allergies, and respiratory infections. This aligns with previous

research indicating that breastfeeding strengthens physical resistance, protects against various health issues, and is linked to higher IQ and protection against obesity (Moreton et al., 2008).

### **Pediatricians' Perspectives on the Effects of Poor Nutrition**

Pediatricians echoed concerns about the effects of poor nutrition, emphasizing:

**Physical and Mental Delay:** Poor nutrition was linked to physical and mental delays, as well as respiratory problems and allergies.

**Holistic Development Impact:** Poor nutrition was associated with negative impacts on holistic development, including low energy, poor performance, and an increased risk of illness. These findings align with research emphasizing the consequences of poor nutrition on various aspects of a child's development (Chen, 2012). In conclusion, the findings provide valuable insights into the perspectives of ECD pediatricians regarding the role of nutrition in the cognitive development of young children, emphasizing the importance of a balanced diet and the avoidance of certain foods detrimental to early childhood development. The consensus on the significance of breastfeeding further underscores its crucial role in promoting overall child health. The concerns raised about the adverse effects of poor nutrition on cognitive development highlight the need for targeted interventions and educational efforts to ensure optimal nutrition for young children in their early years.

## **Recommendations and Conclusion**

### **Recommendations**

#### **For School Administrators:**

1. Ensure the availability of protein, carbohydrates, and calcium-rich food options in school canteens.
2. Restrict non-homemade food in school lunches and consider implementing a ban on such items.
3. Conduct informational sessions for parents and ECD teachers regarding the significance of food and nutrition for cognitive

development.

#### **For ECD Coordinators:**

1. Incorporate foods known for cognitive development into school lunch plans.
2. Encourage the inclusion of homemade lunches for students.

#### **For Parents:**

1. Provide protein, calcium, and carbohydrates-rich breakfast and lunch for children.
2. Encourage healthy eating habits among family members to set a positive example for children.

#### **For Future Researchers:**

1. Utilize multiple data collection tools to enhance the robustness of research findings.
2. Consider conducting research with larger sample sizes to ensure broader applicability of results.

#### **Conclusion**

In light of the research findings, it is evident that proper nutrition plays a pivotal role in the cognitive development of young children. The conclusions drawn from the study are as follows:

1. **Importance of Proper Nutrition:** Developmental age children require adequate food and nutrition for cognitive development. Neglecting proper nutrition in early ages may lead to mental laziness.
2. **Benefits of Good Nutrition:** Good nutrition during early childhood allows children to live up to their full potential, providing protection against diseases, supporting the immune system, preventing obesity, and reducing the risk of chronic diseases. It also positively influences physical, social, and academic performance.
3. **Essential Components of a Balanced Diet:** Foods such as greens, fruits, dry fruits, and grains are crucial for the physical and mental development of young children due to the rapid development of the brain in early ages.

4. **Role of Specific Foods in Brain Development:** Certain foods, such as eggs, yogurts, grains, and fish rich in omega-3 fatty acids, contribute to brain development by aiding concentration, message transmission in brain cells, and protecting against memory loss.
5. **Avoidance of Detrimental Foods:** High salt and sugar foods, frying foods, junk foods, and alcoholic beverages should be avoided during early childhood, as they can lead to weight loss, lack of energy, poor performance, and an increased risk of illness.
6. **Breastfeeding Significance:** Breast milk is highlighted as a critical factor in developing children's immunity, serving as a complete diet with essential nutrients, vitamin A, and antibodies. Breastfeeding contributes to normal body weight and helps prevent diseases like asthma, allergies, and respiratory infections.
7. **Consequences of Poor Nutrition:** Poor nutrition in early ages poses risks of deficiencies like iron and iodine, leading to cognitive, physical, social, and emotional developmental delays. It may result in diseases, low immunity, inadequate brain growth, cognitive issues, slow learning, language delays, low IQ levels, lack of concentration, and poor school performance.

In conclusion, the study emphasizes the vital role of nutrition in the holistic development of young children and advocates for collaborative efforts among school administrators, ECD coordinators, parents, and future researchers to prioritize and promote proper nutrition for the well-being and cognitive growth of children in their early years.

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