PARENTAL FEEDING STYLES AND DIETARY QUALITY OF COMPLEMENTARY FOODS AMONG 6-24 MONTHS CHILDREN IN TRIBAL BLOCK OF VALSAD

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By

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CERTIFICATE

This is to certify that the research work present in this thesis has been carried out solely by Miss Sarthi Sanjay Patel, under the guidance of Dr. Shruti Kantawala in pursuit of degree of Master of Science (Family and Community Sciences) with major in Foods and Nutrition (Public Health Nutrition) and this is her original work.

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Sarthi Sanjay Patel

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LIST OF ABBREVIATIONS

CF- Complementary Feeding

CFSQ- Child Feeding Structure Questionnaire

DDS- Dietary Diversity Score

DQQ- Diet Quality Questionnaire

EBF- Exclusive Breastfeeding

EIBF- Early Initiation of Breastfeeding

FFQ- Food Frequency Questionnaire

FPSQ- Feeding Practices and Structure Questionnaire

HAZ- Height for Age Z scores

ICDS- Integrated Child Development Services

IYCF- Infant Young Child Feeding

IYCN- Infant Young Child Nutrition

MAD- Minimum Acceptable Diet

MDD- Minimum Dietary Diversity

MMF- Minimum Meal Frequency

NCD- Non-Communicable Disease

NFHS- National Family Health Survey

NHM- National Health Mission

SDG- Sustainable Developmental Goal

SES- Socio- Economic Status

SOWC- The State of World's Children

UNICEF- United Nations International Children Emergency Funds

WAZ- Weight for Age Z scores

WHO- World Health Organization

WHZ- Weight for Height Z scores

ABSTRACT

Malnutrition poses a significant public health challenge in India, where a substantial proportion of the world's malnourished children reside. Notably, tribal populations, constituting approximately 8% of India's total population, are particularly vulnerable to undernutrition due to geographical isolation, socio-economic disadvantages, and limited access to healthcare facilities. Optimal nutrition during the first two years of life is crucial for children's physical and psychological development, making infant and young child feeding (IYCF) practices a critical determinant of long-term health outcomes. Inadequate IYCF practices, including suboptimal complementary feeding, contribute significantly to malnutrition, manifested as stunting, wasting, and underweight. Complementary feeding, the introduction of solid and semi-solid foods alongside breast milk from six months, is essential for meeting the growing nutritional needs of infants. Optimal complementary feeding practices, characterized by timely introduction, adequate frequency, appropriate texture, and dietary diversity, are critical for preventing malnutrition. However, in resource-limited settings like tribal communities, these practices are often compromised, leading to nutrient deficiencies and impaired growth. Dietary diversity, a key indicator of diet quality, is frequently limited, resulting in micronutrient deficiencies and adverse health outcomes. Beyond the importance of complementary foods, parental feeding styles play a pivotal role in shaping children's eating behaviors and nutritional status. These styles, including authoritarian, authoritative, indulgent, and uninvolved, influence how children are fed and their subsequent dietary intake. Authoritarian feeding, characterized by strict rules and low responsiveness, can lead to unhealthy eating habits. In contrast, authoritative feeding, combining high demands with high responsiveness, promotes healthier diets and better self-regulation. Indulgent feeding, with low demands and high responsiveness, often results in over consumption of unhealthy foods, while uninvolved feeding, with low demands and low responsiveness, hinders the development of healthy eating behaviors.

Given the critical role of parental feeding styles in influencing children's nutritional status, particularly in vulnerable populations, this study aimed to assess the Parental Feeding Styles and Dietary Quality of Complementary foods among children aged 6-24 months.

The study was community-based cross-sectional study, conducted in the tribal Pardi block of Valsad district, Gujarat, India, among 269 children aged 6-24 months. Data was collected using snowball technique in 10 villages within 15kms from pardi. Data was collected on socioeconomic status, education of parents, KAP of parents, diet quality of children and to assess parental feeding style feeding practices and structured questionnaire was used.

The study revealed that the majority of participating families belonged to Hindu (99.3%) Scheduled Tribe (46.5%) and Other Backward Classes (42.8%) categories, predominantly living in joint families (84%) with agriculture or rent being limited secondary income sources. Socio-economic status was largely categorized as upper lower class (46.8%) and lower middle class (36.4%).

Key findings regarding IYCF practices indicated suboptimal early initiation of breastfeeding (17%) and exclusive breastfeeding rates for the first six months (25.7%), despite high rates of current breastfeeding (82.2%) among older infants. Introduction to complementary foods after six months was common (85.9%). Dietary diversity was notably poor, with low consumption of essential food groups. A significant proportion (79.9%) reported no vegetable or fruit consumption, while unhealthy food consumption was high (84.0%). Only a small fraction of children met the Minimum Dietary Diversity (29.0%) and Minimum Acceptable Diet (28.6%) criteria, with younger infants (6-12 months) exhibiting particularly low rates.

In terms of parental feeding styles, mothers predominantly reported using Authoritarian (32%) and Indulgent (32%) styles. A trend of increasing Authoritarian and decreasing Indulgent styles was observed as children aged. Fathers also reported high usage of Authoritarian (42%) and Indulgent (41.6%) styles, with remarkable consistency across infant age groups. Interestingly, maternal, but not paternal, indulgent feeding was significantly associated with a higher prevalence of wasting (16.5%). Overall, the anthropometric assessment revealed a significant burden of undernutrition, with 16.4% of children underweight, 16.7% stunted (more prevalent in older infants), and 6.8% wasted (more prevalent in older and male children).

In conclusion, this study highlights suboptimal complementary feeding practices, poor dietary diversity, and a predominance of potentially less optimal parental feeding styles within the tribal Pardi community. These factors likely contribute to the significant levels of undernutrition observed. The association between maternal indulgent feeding and

wasting underscores the need for targeted nutrition interventions that address both the nutritional content of complementary foods and parental feeding behaviors to improve child nutritional outcomes in this vulnerable population.

INTRODUCTION

Malnutrition

Malnutrition during early childhood is a crucial global health challenge, widely affecting the growth and development of children under five years of age. It is defined as an inadequate intake of nutrients, resulting in undernutrition, overweight and other micronutrient deficiencies. Malnutrition comprises conditions such as stunting (low height for age), wasting (low weight for height), overweight (too heavy for their height) and lack of essential vitamins and minerals that affect the child's physical growth, cognitive development, and overall health (Ok E., 2024).

The Global Nutrition Report (2022) states that among children under five, the prevalence of overweight, stunting, and wasting is 5.7%, 6.7%, and 22%, respectively. Stunting has decreased by just 5% in the last ten years, while the frequency of overweight has not changed since 2000. These concerning figures highlight the critical need for increased worldwide efforts to combat childhood malnutrition. (Global Nutrition Report, 2022).

According to the Global Nutrition Report (2022), malnutrition among children under five years is significantly greater in India than the global average. According to the National Family Health Survey (NFHS-5), 39% of children under five were stunted, 25% were underweight, and 11% were severely wasted. Additionally, 40% of children were underweight, which is a result of both acute and chronic undernutrition. In addition to its negative impacts on growth and development, malnutrition is a major cause of childhood illnesses and continues to be one of the top causes of child mortality in India.

Gujarat also has a very high prevalence of childhood malnutrition as reported in national databases, the prevalence of stunting, underweight, and wasting among children under five years in Gujarat is 39%, 25.1%, and 25%, respectively, while 3.9% of children are overweight. Despite numerous policy interventions, the nutritional status of children in Gujarat is still high. It has shown minimal improvement since NFHS-4. Over four years, stunting rates have remained steady at 39%, while the proportion of underweight children has slightly increased from 39% to 40% whereas the percentage of wasting has only shown a minor decrease from 26% to 25%. These trends highlight the critical need for innovative and targeted interventions to combat malnutrition in Gujarat and across India.

First 1000 days

The first 1000 days of life - between a woman's pregnancy and her child's second birthday is a unique period of opportunity when the foundations for optimum health and development across the lifespan are established. The right nutrition and care during the 1000-day window influences not only the chances of survival but also his or her ability to grow, learn and rise out of poverty. A strong foundation laid during this period contributes to society's long-term health, stability and prosperity (UNICEF-First 1000 Days for Life).

Optimal nutrition during gestation and early childhood is essential for a child's growth, learning, and overall development. Nutrition fundamentally supplies the energy essential for a child's early development. The initial 1000 days of life are characterized by a period of maximal neurodevelopmental velocity, necessitating the provision of the right nutrients at the right time to ensure optimum brain development (1000 Days).

At least one in three children is not getting the adequate nutrition required for optimal growth, particularly in the crucial first 1,000 days. An increasing number of young children are surviving, but far too few are thriving because of high prevalence malnutrition (UNICEF-SOWC, 2019). Chronic undernutrition, especially in the first 1000 days of life also remains to be a major public health issue as many negative effects of it are widely irreversible. (Yadav et al., 2023).

To address the problem of childhood malnutrition and its burden, there is a need to focus on feeding and health care for children during the first 1000 days. Optimum nutrition and care during the period of the first 1000 days help not only ensure the survival rates but also in the overall growth and development of the children which will contribute to improvement in the productive development of nations in the future. Thus, adequate feeding and caregiving practices in the first two years of life play a major role in shaping the well-being of the children.

Infant and Young Child Feeding- IYCF

Infant and Young Child Feeding (IYCF) is a global set of guidelines for feeding infants and young children under two years of age. The recommendations include initiation of breastfeeding within the first hour of birth, exclusively breastfeeding for the first six months, and timely introduction of adequate and nutritious complementary foods (solid foods) at six months while continuing to breastfeeding up to at least 24 months (WHO, 2023).

As per the findings of Global Nutrition Report (2022) on IYCF indicators globally, the prevalence rate for early initiation of breastfeeding is 48.4% following exclusive breastfeeding rate of 43.8% and the rate of timely introduction of complementary foods being 72.6%.

However, the rate of recommended IYCF practices in India are lower that the global data. As per the NFHS-5 report, only 41.8% of children in India receive early initiation of breastfeeding, while 63.7% receive exclusive breastfeeding for the first six months. Additionally, less than half (45.9%) of children experience the timely introduction of complementary feeding with continued breastfeeding.

The NFHS 5 report for Gujarat state shows that the prevalence of children breastfed within one hour of birth is only 37.8% which is much lower than the national prevalence. However, a slightly higher proportion of children are exclusively breastfed in Gujarat (65%) as compared to national data (63.7%). Mothers milk is not sufficient to meet the nutrient requirements of an infant after 6 months of life. Hence, the introduction of complementary feeding at this age known as timely introduction of complementary feeding is crucial for every child but only 42% of the children receive timely initiation of complementary foods in Gujarat which is a concern that requires to be addressed.

Complementary Feeding

As mentioned before, when breastfeeding alone can no longer fulfil an infant's nutritional needs, complementary feeding has to be started by introducing additional foods and liquids alongside breastfeeding. Complementary feeding should be given to all the children after completion of 6 months with continued breastfeeding at least up to 24 months (Javalkar & Aras, 2018).

WHO recommends complementary feeding should be fed,

1. **Timely**

   Complementary foods should be introduced **timely** starting from 6 month when an infant's nutritional requirements are more than the breastmilk alone can provide.

2. **Appropriate**

   The child should be fed complementary foods **appropriately** according to their hunger and fullness cues, with proper meals at right frequency and consistency as per the age of the children.

3. **Adequate**

   Feeding **adequate** complementary foods means that it provides sufficient energy, protein and micronutrients to meet a growing child's nutritional needs.

4. **Safe**

   The storage and handling practice of the complementary food should be **safe** meaning that the food should be fed with clean hands and utensils and not with bottles and teats.

WHO recommends that infants should start receiving complementary foods at 6 months of age along with breastfeeding, initially 2-3 times a day between 6-8 months, following to 3-4 times a day between 9-11 months and 12-24 months with additional nutritious snacks offered 1-2 times a day, as desired (WHO, 2020).

Delayed introduction of complementary foods was reported to be linked with stunting and severe stunting among infants (Dhami et al., 2019).

Appropriate nutrition during infancy and childhood is key to ensuring optimum growth, development and health of children. Inadequate infant and young child feeding is responsible for childhood infections and long-term impairment of growth and health. Malnutrition during the early years can cause stunting, with long-term consequences on cognition and physical work capacity, and poor complementary feeding practices contribute significantly to malnutrition in children (WHO,2020).

The main roots of undernutrition are inadequate breastfeeding and improper complementary feeding (Yadav et al., 2023). Adequate complementary feeding, a foundation of IYCF practices, remains a significant challenge globally and in India. Optimal complementary feeding practices should reflect the FATVAH principles developed by (UNICEF). They are;

- **F**requency of feeding
- **A**mount/quantity of food
- **T**hickness of food
- **V**ariety of food
- **A**ctive feeding/Responsive feeding
- **H**ygiene

Appropriate nutrition during infancy and childhood is key to ensuring optimum growth, development and good health of children. Inadequate infant and young child feeding is responsible for higher rates of childhood infections and long-term impairment of growth. Malnutrition during the early years can cause stunting, with long-term consequences on cognition and physical work capacity, and poor complementary feeding practices contribute significantly to malnutrition in children (WHO, 2020).

How is the adequacy of complementary feeding assessed?

In addition to timely introductions, many aspects such as Minimum Diet Diversity, Minimum Meal Frequency and Minimum Acceptable diet are important indicators reflecting the adequacy of complementary foods.

Dietary diversity is a crucial aspect of complementary feeding for children under 2 years. It serves as an indirect measure, or proxy, to evaluate the micronutrient sufficiency of their complementary diets in children under 24 months of age. A diverse diet helps prevent nutrient deficiencies, supports a strong immune system, and promotes healthy growth, reducing the risk of undernutrition, stunting, and long-term health issues. The World Health Organization (WHO) recommends that preschool children aged 6 to 23 months be fed at least five of the eight food groups in their diet to ensure healthy growth and development.

The eight food groups are:

1. Breastmilk
2. Grains roots and Tubers
3. Vitamin-A-rich fruits and vegetables
4. Flesh Foods
5. Legumes and nuts
6. Eggs
7. Other fruits and vegetables
8. Dairy

Ensuring **Minimum Dietary Diversity** i.e.- feeding at least 5 out of the aforementioned 8 food groups in complementary feeding is very important, as it determines the nutritional status of children and prevents adverse consequences of malnutrition, including childhood infections, growth retardation, and the development of psychological challenges.

In addition to the inclusion of different food groups, ensuring that children are given the number of meals according to their age is also required. This is reflected in the indicator, **Minimum Meal Frequency** which is defined as the percentage of children aged 6-23 months who were fed the minimum number of meals/snacks during the previous day.

The dietary diversity and meal frequency of complementary foods in combination with each other show whether the dietary intakes are adequate or not. The indicator for this is, the **Minimum Acceptable Diet**, defined as the percentage of children aged 6-23 months who were fed the minimum number of meals as well as food from the minimum number of food groups.

According to the UNICEF Global Database 2018, only one in six children receives a minimum acceptable diet in Low- and Middle-income countries. However, only 21% of children globally meet MAD, as per the UNICEF Global Database Report (2024). In India, the prevalence is critically low, with only 10.8% of children meeting MAD and 24.1% meeting Minimum Dietary Diversity (MDD), as reported by NFHS-5. The situation is even more concerning in Gujarat, where only 5.9% of children meet MAD, and 17.8% achieve MDD, highlighting poor complementary feeding practices and dietary diversity among young children. However, the MAD of the tribal districts, Valsad and The Dangs are better than that of Gujarat as well as India with 16% and 16.5 % respectively (NFHS-5).

According to Jeyakumar. A. et.al, (2023), A minimum acceptable diet (MAD) is a direct indicator that correlates with nutritional status and improving complementary feeding practices provides remarkable improvements in the nutritional status of children.

One of the studies also highlighted that the underweight and wasting prevalences were significantly higher among 12–35- 35-month-old children who did not meet MDD than among children having MAD (Meshram, I. I et.al., 2019).

Hence the studies reveal that improving complementary feeding practices significantly enhances children's nutritional status, with the minimum acceptable diet (MAD) closely linked to better nutrition outcomes.

Parental Role and Parental Feeding Practices

Parents play a vital role in shaping their children’s feeding practices. The knowledge, attitudes, and behaviors of parents directly influence the dietary patterns of young children, who are entirely dependent on them for their nutritional needs. Poor knowledge among mothers is a proven determinant of poor IYCF practices. (Jeyakumar, A., et.al, 2023) Research has also

shown that parental feeding styles significantly impact child growth and development. For instance, a study conducted in Mexico demonstrated that a responsive parental feeding style—characterized by attention to a child's hunger and satiety cues—leads to better feeding practices at six months of age. In contrast, pressuring children to eat was associated with poor growth outcomes (Kim-Herrera et al., 2021).

Parental Feeding Styles are built by the attitudes that characterize parental actions to maintain or modify child eating behaviours, and are based on the degree of parental control and responsiveness shown during child feeding. (Hughes SO et al. 2021)

A caregiver's feeding style, defined as the emotional environment that caregivers create when a child is eating can have a positive or negative influence on children's eating behaviour (Hughes, Power, Orlet Fisher, Mueller, & Nicklas, 2005).

In 2003, the Global Strategy for Infants and Young Child Feeding (WHO & UNICEF, 2003) recognized the importance of improving caregiver's Responsive Feeding (RF) behaviours to ensure the adequate introduction of complementary foods. (Pérez-Escamilla et al., 2019)

Both parenting and feeding styles are essential for a child's healthy growth and development. How a child is fed is just as important as what they are fed.

In India, however, limited studies have explored parental feeding practices and their impact on child nutrition. A study conducted in Pune on parental awareness regarding feeding practices for children aged 12–24 months, revealed that adequate nutrition during infancy and childhood is a critical determinant of growth and development, and parental feeding styles play a crucial role in ensuring optimal nutrition (Ganesan et al., 2021). Strengthening parental knowledge and practices through targeted interventions is essential for improving the nutritional status of children and addressing the persistent burden of malnutrition.

Rationale

The younger children are completely dependent on caregivers for their nutritional needs. It is well documented that IYCN practices is a major factor affecting the nutritional status of young children.

Feeding and parenting are closely connected, with parents' feeding practices influencing how children eat. This dynamic interplay, shaped by both genetics and the early feeding environment, sets the stage for lifelong eating habits and overall health.

There is a need to study the Parental Feeding Practices prevalent in Gujarat and understand their influence on IYCF practices and nutritional status among young children.

Hence, present study was conducted with an aim **to assess parental feeding styles and dietary quality of complementary foods among 6-24 months children in Tribal block Pardi of Valsad district in Gujarat.**

REVIEW OF LITERATURE

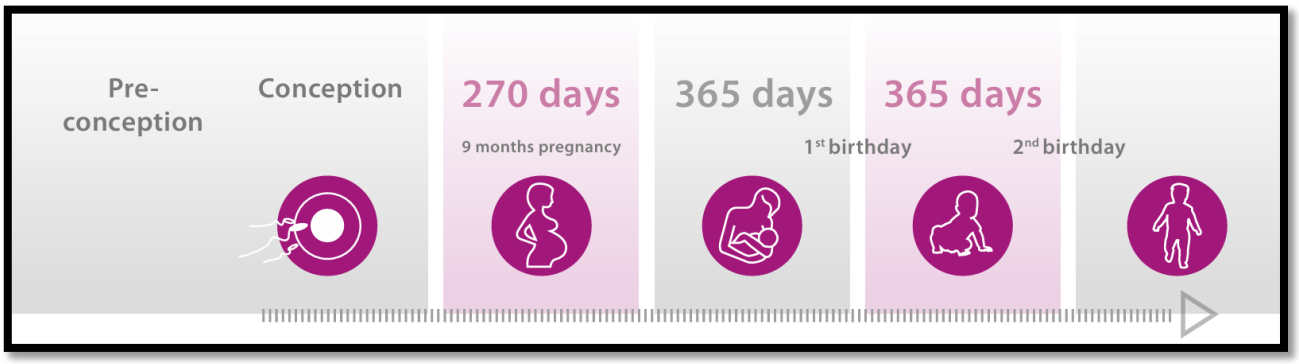
Good nutrition is the foundation for good health and well-being for a lifetime **(**UNICEF India, 2025).

Good nutrition is the core foundation of child survival and development. Well-nourished children can grow well, learn better, play, and participate in their communities (Nutrition for Children, UNICEF India, 2025). Better nutrition is directly linked to improved infant, child, and maternal health, stronger immune systems, safer pregnancy and childbirth, a lower risk of non-communicable diseases, and increased longevity (United Nations Children's Fund, World Health Organization, & World Bank Group, 2018). Young children are particularly vulnerable to death and disease due to their developing immune systems. Good nutrition, encompassing all essential nutrients, vitamins, and minerals, protects children from illness and builds resilience for their entire lives (World Hunger, 2020).

Adequate nutrition during infancy and early childhood is critical for a child's developmental potential. The period from conception to 23 months is a recognized crucial window for optimal growth, health, and behavioral development (Kimiywe & Chege, 2017). Thus, focusing on optimal feeding practices for young children is essential to ensure a healthy start of life for all.

First 1000 Days of Life

FIGURE 2. 1: FIRST 1OOO DAYS- PERIOD FROM PRE-CONCEPTION TO CHILD'S 2ND BIRTHDAY



Source: (Why the First 1000 Days of Life Matter During Pregnancy Pre-Conception, 2018)

The first 1000 days of life represent the period between conception and the child's second birthday. During this period, pillars for proper physical growth and psychosocial development of the child are led significantly to decide the future of the individual based on the health and nutrition of the child in the first 1000 days of life (Indrio et al., 2023).

The first 100 days of a child's life are very critical for shaping the health of unborn babies, infants, young children and their mothers. Environmental factors along with most importantly feeding optimal nutrition have a direct impact on a child's overall growth and brain development, digestion, metabolism, and immunity. Thus, ensuring a well-balanced diet with adequate nutrients at an early age for younger children is vital for creating a base for lifelong health (Why the First 1000 Days of Life Matter During Pregnancy Pre-Conception, 2018).

Undernutrition expressed as stunting, wasting and underweight blocks physical growth and cognitive development, with unending consequences during the critical window of the first 1,000 days of life (R. E. Black et al., 2013)

A child's capacity to develop, learn and thrive is fundamentally rooted in optimal nutrition during pregnancy and the critical early years of life. Researches consistently highlight how children develop healthy eating habits along with consistent and responsive interactions with caregivers and nurturing safe environments are three essential supports, leading to a strong foundation upon which children can achieve success in future. Physical health, social skills, emotions and learning can be negatively affected when the child misses out on these three essential supports. Children receiving proper and adequate nutrition during the first 1000 days have a lower risk of being malnourished and developing various metabolic diseases which in turn results in better health of the child and financial stability as an adult in later life (Likhar & Patil, 2022).

According to UNICEF, Children who get the right nutrition during the first 1000 days are;

- 10 times more likely to overcome the most life-threatening child diseases
- Complete 4.6 more grades at school.
- Go on to earn 21% more in wages as adults.
- Are more likely to have healthier families.

Hence, feeding and caregiving practices for children below two years of age play a vital role in the growth and development of the children. These also determine the well-being of children during adulthood.

IYCF Practices

For a child to grow, develop, and reach their full potential, early feeding practices are essential. Additionally, childhood is the ideal period to establish food habits that will benefit health throughout life. The World Health Organization and UNICEF have developed a global strategy for Infant and Young Child Feeding to ensure the best possible nutrition for infants and young children which consists of exclusive breastfeeding for the first six months of life, introduction of safe and nutrient-dense complementary food at six months of age, and continued breastfeeding for up to two years or beyond (Berti & Socha, 2023).

Failure to achieve these recommendations during this crucial period of growth can lead to long-term irreversible consequences for children, such as stunted growth, weakened immunity, impaired cognitive development and reduced productivity in adulthood. These not only affect the children at individual levels but also hinder the social and economic development of societies leading to a vicious cycle of malnutrition across generations. Poor feeding practices resulting in malnutrition and higher morbidity rates increase the rate of mortality among children. Worldwide, 40% of fatalities among infants under two years of age are attributable to improper child-feeding practices, with underdeveloped nations having an infant mortality rate ranging between 25-50%. (Darcho et al., 2025).

As reported by WHO (2023), undernutrition is estimated to be associated with 2.7 million child deaths annually or 45% of all child deaths. This indicates that Infant and young child feeding is a key area to improve and promote healthy growth and development and child survival. The first 2 years of a child's life are particularly important, as optimal nutrition during this period lowers morbidity and mortality, reduces the risk of chronic disease, and fosters better development overall. (WHO, Infant and Young Child Feeding 2023).

Proper Infant and Young Child Feeding practices help to prevent almost 19% of all under-five deaths. However, globally, 45% of child deaths are linked to undernutrition, and only about 44% of infants less than six months old were exclusively breastfed. Also, more than two-thirds of malnutrition-related child deaths are associated with inappropriate feeding practices during the first two years of life (Adhikari et al., 2021).

Complementary Feeding

To address the increasing nutritional needs of growing infants, complementary feeding is introduced in the form of semi-solid foods along with breastfeeding or formula milk, recommended from 6-23 months of age. This practice, with the potential of continued breastfeeding, plays a pivotal role in preventing malnutrition and nutrient deficiencies, thereby contributing to long-term health outcomes (Likhar & Patil, 2022).

At 6 months of age, physiologically, children are able to chew, swallow, and digest foods other than breast milk, which means they can begin to eat complementary foods to meet their energy and nutrient requirements (Enabling Better Complementary Feeding | USAID Advancing Nutrition).

The provision of complementary feeding is characterized by appropriate timing, adequacy, and hygienic safety, in context with quantity, quality, variety and consistency, which is critical for fostering optimal growth and development of an infant (Berti & Socha, 2023).

Early initiation complementary feeding (CF), before a child is four months old, can cause problems like diarrhoea, colic, and stomach aches. It also increases the risk of the child becoming overweight or obese later in life. On the other hand, waiting too long to introduce solid foods can lead to developmental issues, nutritional problems (especially iron deficiency after six months), difficulties with eating (because the child misses out on developing chewing skills), and also, surprisingly, overweight and obesity. How well complementary feeding works depends on several things, like the family's income, the mother's age and education, where they live, whether they have older children, and how long the child is breastfed (Kostecka et al., 2020).

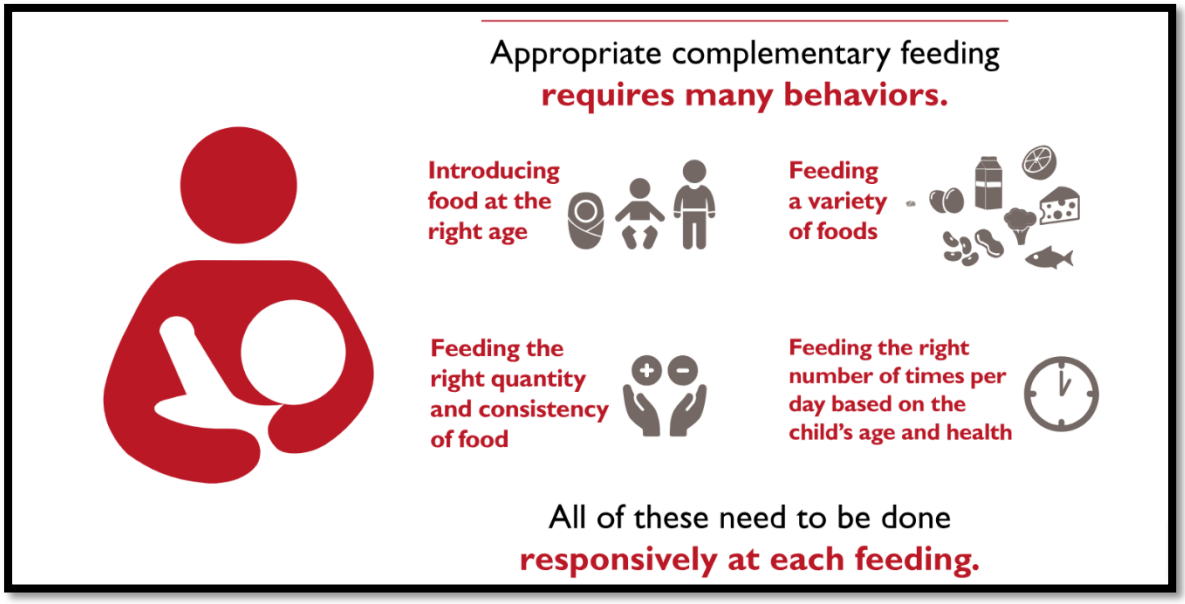
Delayed or inappropriate introduction of complementary foods at 6 months of age can lead to growth impairments in infants (WHO, Infant and Young Child Feeding, 2023.).

Thus, following appropriate feeding practices for infants and young children is crucial. The guiding principles/recommendations on IYCF practices given by the World Health Organisation are written below:

Guiding principles for appropriate complementary feeding as per the WHO are;

- Continue frequent, on-demand breastfeeding until 2 years of age or beyond;
- Practise responsive feeding (for example, feed infants directly and assist older children. Feed slowly and patiently, encourage them to eat but do not force them, talk to the child and maintain eye contact);
- Practise good hygiene and proper food handling;
- Start at 6 months with small amounts of food and increase gradually as the child gets older;
- Gradually increase food consistency and variety;
- Increase the number of times that the child is fed: 2–3 meals per day for infants 6–8 months of age and 3–4 meals per day for infants 9–23 months of age, with 1–2 additional snacks as required;
- Use fortified complementary foods or vitamin-mineral supplements as needed; and
- During illness, increase fluid intake including more breastfeeding, and offer soft, favourite foods.

FIGURE 2. 2: APPROPRIATE COMPLEMENTARY FEEDING



Source: (Enabling Better Complementary Feeding | USAID Advancing Nutrition)

Global Scenario of IYCF Practices

According to the UNICEF data on IYCF indicators, a total of 46% of children received early initiation of breastfeeding, and about three-fourths (72%) of them had received timely introduction of solid, semi-solid, or soft foods. Data on the adequacy of diet showed that 34% of children received diets with Minimum Dietary Diversity and 51% received Minimum Meal Frequency. However, only one-fifth (21%) of the children globally receive a minimum acceptable diet. This emphasizes the fact that IYCF practices still need to be improved through various strategies (UNICEF, 2023; UNICEF, 2024).

Global data indicates a progressive increase in the prevalence of the introduction of solid, semi-solid, and soft foods. According to the Global Nutrition Report (2023), 72.6% of children worldwide are now introduced to complementary foods. This represents a notable upward trend from previously reported prevalence rates. A study by (Zong et al., 2021), documented a global prevalence of the introduction of solid, semi-solid, and soft foods was 63.1% in 2018, followed by a rise to 69%, as reported by the UNICEF global database, in 2019.

UNICEF data revealed a concerning picture of Infant and Young Child Feeding (IYCF) practices in South Asia. The prevalence of children experiencing initiation of early breastfeeding is only 39%, while the children receiving exclusive breastfeeding is 60%. Introduction to solid foods occurs in 56% of children, but dietary adequacy is alarmingly low with only 24% of the children achieving minimum dietary diversity, 42% meeting Minimum Meal Frequency, and shockingly, a very low ratio (13%) receives a Minimum Acceptable Diet in South Asia. These figures underscore the urgent need for strategic interventions to enhance IYCF practices throughout the region (UNICEF, 2023; UNICEF, 2024).

Research-based findings on IYCF Practices in various countries across the Globe

Various research studies conducted in different parts of the World have also shown that the IYCF practices followed by parents of young children are not optimal.

A study conducted in Indonesia on complementary feeding practices among children aged 6-23 months showed that the rates of introduction to solid, semi-solid, and soft foods,

Minimum dietary diversity, Minimum Meal Frequency, and Maximum Adequate Diet were 86.1%, 54.3%, 71.8%, and 37.6%, respectively (Nurokhmah et al., 2022).

Another cross-sectional study carried out in Northern Ghana on children aged 6-23 months in showed that 66.4% of the children (6-23 months) were given timely complementary feeding of which, 69.4% met the minimum meal frequency but only around half of them (38.9%) met the minimum acceptable diet (Anin et al., 2020).

A study conducted in Nepal's Syangja district examined Infant and Young Child Feeding practices among mothers of children aged under two years. The prevalence of breastfeeding was high at 95.6 % and initiation of breastfeeding was also relatively better at 69.2%. However, exclusively breastfeeding and timely initiation of complementary feeding was poor with the ratio of 47.6% and 53.3% respectively. This shows the gap in appropriate IYCF practices and need for following recommended feeding guidelines (Adhikari et al., 2021).

A cross-sectional study conducted in Bangladesh among tribal (Garo) and non-tribal (non-Garo) mothers, revealed high breastfeeding rates (Garo: 95.6%, non-Garo: 97.2%) but suboptimal complementary feeding practices. A significant ratio, introduced complementary foods too early (Garo: 87%, non-Garo: 84%), with only 13% of Garo and 16% of non-Garo mothers adhering to the recommended practice of initiation at 6 months. Alarmingly, 22.6% delayed initiation of complementary feeding beyond 7 months, potentially increasing malnutrition risk. (Burhanuddin et al., 2011).

A community-based retrospective cohort study conducted in Ethiopia to determine the median time to complementary feeding initiation and its associated predictors among children aged 9–23 months reported that the median time to complementary feeding initiation was 6 months. It was seen that only half (52.3%) of children received the initiation of complementary feeding within the recommended timeframe, while 26.14% received early initiation of complementary feeding and 21.13% started being given complementary feeding late. Further, maternal educational status, maternal occupation, place of delivery, and birth preparedness were identified as significant predictors of complementary feeding initiation timing (Alemu et al., 2023).

Malnutrition is a significant contributor to under-five mortality in developing countries, accounting for approximately 60% of all deaths within this age group. Suboptimal feeding practices, including limited dietary diversity, insufficient feeding frequency, and inappropriate timing of complementary feeding (CF), specifically initiation before four months or after seven months, are implicated in approximately 66% of these under-five deaths. (Ashraf et al., 2024).

However, according to the study reported by (Zong et al., 2021), the situation in South Asia is troubling in terms of the introduction of complementary foods, where about only half of the children (51.0%) are being introduced to solid, semi-solid and soft foods.

South Asia exhibits a disproportionately high burden of childhood malnutrition, characterized by the highest global prevalence of stunting (33.2%, representing approximately 60 million children) and wasting (14.8%, representing approximately 27 million children) (Ashraf et al., 2024).

Additionally, suboptimal complementary feeding practices can contribute to the development of adult-onset conditions such as overweight, type 2 diabetes, and disability (Likhar & Patil, 2022).

Thus, these studies showed that complementary feeding practices still are far from being optimal. While data on the prevalence of breastfeeding shows a decent picture, data on early initiation of breastfeeding, exclusive breastfeeding as well as the indicators related to complementary feeding i.e.- timely introduction of complementary feeding, minimum dietary diversity, minimum meal frequency as well as minimum adequate diets show a highly suboptimal scenario.

National Scenario of IYCF Practices

The NFHS 5 report for India shows that IYFC practices in India are also suboptimal. Only 41.8% of children in India receive early initiation of breastfeeding. The prevalence of exclusive breastfeeding is higher than the rate of exclusive breastfeeding with nearly two-thirds of children (63.7%) receiving only mothers mild for the first six months after birth. Practices regarding complementary feeding are also found to be inadequate as per NFHS 5. Only 45.9% received timely initiation of complementary feeding with alarmingly low (only 11.3%) being fed minimum acceptable diet.

TABLE 2. 1: PREVALENCE OF IYCF PRACTICES IN INDIA ACCORDING TO NFHS 5

Sr.No.	Indicator	Prevalence (%)
1.	Early initiation of breastfeeding within one hour of birth (%)	41.8%
2.	Exclusively breastfeeding (0-6 months) %	63.7 %
3.	Complementary Feeding (6-9 months) %	45.9 %
4.	Children aged 6-23 receiving an adequate diet %	11.3 %

Source: National Family Health Survey, (NFHS-5 2019-20), India

Research Studies Conducted in various tribal regions of India

A review of research studies conducted in various tribal communities across India are presented in this section (Table 2.2).

A study conducted in Orissa on marginalised populations provided district-level data on infant and young child feeding practices, revealing concerning trends. The prevalence of exclusive breastfeeding was reported at 48% and early initiation of breastfeeding at nearly 46%. However, child feeding indicators for children aged 6-23 months were particularly alarming with 27.4% of children met Minimum dietary diversity, and Minimum Meal Frequency was just 29% (Kar et al., 2015).

A study in West Bengal's Bhatar block assessed Infant Young Child Feeding Practices of children 0-23 months among Santal women, a marginalised tribal group which showed a moderate prevalence of early initiation of breastfeeding in 48.33 % of children, exclusive breastfeeding in 46.15%, children and timely introduction of complementary foods in 46.67 % children. The minimum dietary diversity scores were 30.85% and the minimum meal frequency was 41.49 %. However, the proportion of complementary feeding to children ages 6-9 months in tribal areas was much less than that found in rural areas of West Bengal (Mondal et al., 2014).

A study conducted in Vishakhapatnam highlighted that exclusive breastfeeding during the first six months was notably high at 88.4%. Data regarding complementary feeding showed that 74% of children received solid or semi-solid foods by six months. Only 48.5% of

children met the minimum acceptable diet (both minimum dietary diversity and meal frequency). This showed that the majority either had high dietary diversity with a low meal frequency or vice versa. Thus, feeding practices in early infancy are satisfactory; however, feeding practices in late infancy and early childhood are suboptimal, resulting in wasting and stunting among children (Sreegiri et al., 2015).

Kol tribes of Madhya Pradesh conducted by (Tiwari et al., 2007), reported significantly lower rates of recommended IYCF practices. It was found that only 20.8% received exclusive breastfeeding while 70% of mothers failed to start breastfeeding until 3 days of birth, and also late introduction of complementary foods was observed among the Kol tribes of Madhya Pradesh.

A study in West Bengal's Bankura district also revealed alarmingly low rates of optimal infant feeding. Only 13.6% of infants received early breastfeeding initiation, and just 57.1% were exclusively breastfed for the first six months. Complementary feeding at the recommended 6-8 months was also suboptimal, at 55.7%. Furthermore, appropriate feeding dropped significantly for older infants, with only 15.2% of 6–11-month-olds and 8.7% of 12–23-month-olds receiving adequate nutrition, likely due to insufficient feeding frequency and quantity. The study identified late breastfeeding initiation, poor exclusive breastfeeding rates, and improper complementary feeding as key concerns (Sinhababu et al., 2010).

A study in the Bhadrachalam region of Andhra Pradesh examined the dietary and nutritional status of tribal populations. The survey revealed that a large majority of mothers (90%) began breastfeeding within the first 24 hours postpartum. Regarding complementary feeding, approximately 76% of children were introduced to solid foods between 4 and 6 months, while the remaining children started later, between 7 and 12 months (Laxmaiah et al., 2007).

A study held in the Banswara district of Rajasthan on IYCF practices among 6-23 years old tribal children revealed that the initiation of breastfeeding within one hour of birth was observed in 60% of children, the ratio of exclusive breastfeeding for 6 months was the highest, being at 94%. Continued breastfeeding until 12-23 months was prevalent, with 80% of children over one year still being breastfed. However, complementary feeding practices were suboptimal. Only 40% of children aged 6-8 months received semi-solid foods, and despite 55% of children receiving meals more than four times a day, minimum

dietary diversity (MDD) was alarmingly low at 7%, and minimum acceptable diet (MAD) was only 6% (Modugu et al., 2022).

Another study done on 218 Kol tribe women in the Manikpur block of Chitrakoot district Uttar Pradesh reported that only half (53.5%) of children were given timely introduction of complementary feeding with 27.6% of children having received early initiation and 18.9% having received late initiation of complementary feeding (Yadav et al., 2023).

Thus, the review of various studies conducted in tribal regions of India reflected that optimal IYCF practices, especially recommended practices related to complementary foods, are not adequately practised.

TABLE 2. 2: IYCF STUDIES CONDUCTED IN TRIBAL REGIONS OF INDIA

Sr.no.	Author	Year	Place	Age Group	Prevalence
1.	(Tiwari et al., 2007)	2007	Madhya Pradesh	6-23 months	EBF- 20.8%
2.	(Sinhababu et al., 2010)	2010	West Bengal	6-23 months	EIBF- 13.6 EBF- 57.1%
3.	(Laxmaiah et al., 2007)	2010	Andhra Pradesh	0-23 months	EIBF- 90% CF- 76%
4.	(Mondal et al., 2014)	2014	West Bengal	0-23 months	EIBF- 48.33% EBF- 46.15% CF initiation- 46.67% MDD- 30.85% MMF- 41.49%
5.	(Kar et al., 2015)	2015	Orrisa	6-23 months	EBF- 48% EIBF- 46% MDD- 27.4% MMF- 29%
6.	(Sreegiri et al., 2015)	2015	Vishakha patnam	6-23 months	EBF- 88.4% CF- 74% MAD- 48.5%
7.	(Modugu et al., 2022)	2022	Rajasthan	6-23 months	EIBF- 60% EBF- 80% CF- 40% MDD- 7% MAD- 6%

8.	(Yadav et al., 2023).	2023	Uttar Pradesh	6-23 months	CF- 53.3%

Regional Scenario of IYCF Practices in Gujarat State

NFHS 5 data was on IYCF practices in Gujarat as well as showed that the prevalence of early initiation of breastfeeding within one hour of birth was lower in Gujarat (37.8%) as compared to India (41.8%). Valsad District of Gujarat reported a much higher prevalence (68.9%) of early initiation of breastfeeding than the national as well as state-level prevalence. However, Valsad reported a much lower prevalence of exclusive breastfeeding for infants aged 0-6 months with only half (49.9%) of these children receiving exclusive breast-feeding in contrast to the rate of exclusive breastfeeding of 63.7% and 65% in India and Gujarat respectively. The data on the timely initiation of complementary feeding is not available for the Valsad district in NFHS 5. The data for Gujarat showed a comparable prevalence (42%) of timely initiation of complementary feeding as in India (45.9%) (TABLE 2. 3).

Data on Minimum Acceptable Diet showed a poor scenario in Gujarat with only (5.9%) of children receiving a minimum acceptable diet. Valsad (16%) had a significantly better prevalence of Minimum Acceptable Diet when compared with Gujarat (5.9%) as well as India (11.3%) (TABLE 2. 3).

TABLE 2. 3 PREVALENCE OF IYCF PRACTICES IN GUJARAT AND VALSAD ACCORDING TO NFHS 5

Sr.No.	Indicator	Gujarat	Valsad
1.	Early initiation of breastfeeding within one hour of birth (%)	37.8%	68.9 %
2.	Exclusively breastfeeding (0-6 months) %	65 %	49.90 %
3.	Complementary Feeding (6-9 months) %	42 %	-
4.	Children aged 6-23 receiving an adequate diet %	5.9%	16 %

Source: National Family Health Survey, (NFHS-5 2019-20), Gujarat

Regional Research Studies on IYCF Practices in Gujarat State

A hospital-based study in Surat on assessment of Infant and Young Child Feeding (IYCF) practices among mothers of children under two showed that colostrum feeding was reported by 74.7% of mothers and exclusive breastfeeding for the first six months by 67.3% of the mothers. The complementary feeding met minimum dietary diversity in two-thirds (62.5%) of the children whereas minimum meal frequency was only met in 48% of the children. Less than half (44.3%) of the children received complementary feeding meeting the criteria for minimum acceptable diet. (Choraria et al., 2023).

A study conducted in Anand and Kheda districts among children less than 5 years reported, that over half (57.5%) of the children received breastfeeding within one hour of birth and about 56% of the children were exclusively breastfed for 6 months (Patel et al., 2015).

A study conducted on assessment of Infant Young Child Feeding Practices (IYCF) practices among children 6-23 months old in rural Dabhoda, Gujarat, stated a significant proportion (94.2%) of children were put to the breast within one hour of birth and 95% of the children were exclusively breastfed for 6 months. More than half (59.8%) of the children received complementary feeding at 6 months of age. However, minimum meal frequency was met adequately in 95.6% of the children, whereas the minimum acceptable diet was relatively low in 28.3% of the children. This concludes that there were good IYCF practices, but a few indicators, specifically the prevalence of minimum adequate diet were notably poor. Therefore, there is a need to focus on the dietary diversity of children below 2 years of age (Chandwani et al., 2015)

A community-based cross-sectional study was carried out in the rural and urban areas of the Ahmedabad city of Gujarat, to assess breastfeeding and weaning practices among children under 5 years of age. The study revealed a significant difference in infant feeding practices between rural and urban populations. Specifically, early breastfeeding initiation was observed in a considerably lower proportion of children under five in rural areas (57.5%) compared to urban areas (92.5%). Similarly, exclusive breastfeeding rates among children under five were lower in rural areas (71.4%) than in urban areas (82.5%). Furthermore, the introduction of complementary foods at six months was less prevalent in rural areas (65%) than in urban areas (75%). These findings underscore the necessity for targeted interventions to improve infant feeding practices, particularly regarding complementary feeding, within rural settings (Rastogi & Lala, 2024).

Departmental studies

A study was conducted in Chikhli Taluka of Gujarat, focusing on tribal mothers, to assess the effectiveness of multimedia-based nutrition and health education on breastfeeding and complementary feeding practices, and its effect on children's nutritional status. Their findings recommended that mass media campaigns are a feasible tool for circulating behavior-changing messages, positively influencing public awareness, attitudes, and healthcare utilization. This approach demonstrated the potential to improve breastfeeding and complementary feeding practices, reduce myths, and increase knowledge about health and nutrition (Seksaria et al., 2015).

A study in urban Vadodara, Gujarat highlighted poor dietary diversity among young children and found that while cereal consumption was high (96%), intake of diverse food groups was low, with only 8% consuming meat and fish, 14% nuts and seeds, and 9% eggs. A significant 54.5% of children aged 6-59 months exhibited low dietary diversity, with male children showing particularly poor scores (Kantawala S and Prajapati T, Dhruv S and Mwango H, 2023). Similarly, (Sengar V and Karud T, 2022) reported that 59.6% of children under five in urban Vadodara had low dietary diversity, reinforcing the prevalence of this issue in the area.

A study conducted in Rural Vadodara by (Nambiar V, and Khanna T, 2017) highlighted alarmingly poor Infant and Young Child Feeding (IYCF) practices, revealing low rates of timely breastfeeding initiation (54.2%), colostrum feeding (58.3%), and exclusive breastfeeding (31.9%). Consequently, the study documented severe malnutrition among children, with 33.3% wasted, 75% stunted, and 62.5% underweight, and a significant correlation between stunting/wasting and developmental delays, emphasizing the urgent need for targeted interventions employing behavior change communication to improve IYCF and nutritional outcomes.

Therefore, the collective evidence from the above studies consistently indicates a strong correlation between suboptimal child feeding practices and insufficient dietary intake among the children, leading to cause childhood malnutrition. Hence, there is a need to focus on improving child feeding practices, particularly within the critical first two years of life to improve the quality of child survival.

Malnutrition- A Serious Problem among Young Children

Despite the noted significance of nutrition, malnutrition, comprising two major issues undernutrition and overnutrition or overweight, is a crucial global health problem, specifically affecting groups belonging to vulnerable populations such as young children (WHO, 2020). Undernutrition is divided into four significant forms: wasting, stunting, underweight and micronutrient deficiencies.

Wasting is defined as low weight- for- height which indicates severe weight loss and it can also persist for a longer period. It usually occurs when adequate quality and quantity of food is not consumed by a person. Wasting in children is associated with a higher risk of death if not treated properly.

Stunting is defined as low height- for- age. It is the result of chronic or recurrent undernutrition, usually associated with poverty, poor maternal health and nutrition, frequent illness and inappropriate feeding and care in early life. Stunting prevents children from reaching their physical and cognitive potential.

Underweight, indicated by a low weight-for-age measurement, is a significant sign of malnutrition in children. This condition can lead to long-lasting problems, including impaired physical and mental development, behavioral issues, and poor academic performance. Specifically, children with weight-for-age scores below -2 standard deviations (-2SD) are classified as underweight, and those below -3SD are considered severely underweight (Acquah et al., 2019)

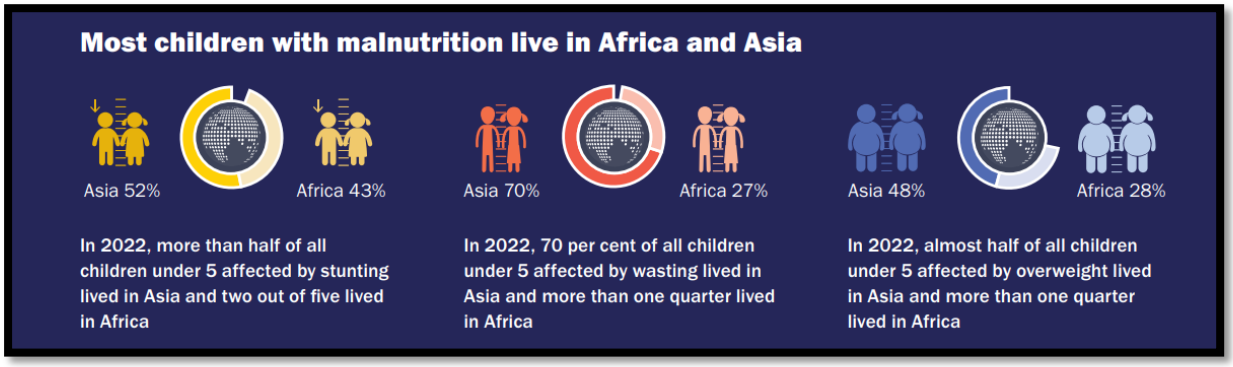
Micronutrient deficiencies are lack of vitamins and minerals that are essential in smaller quantity to perform various body functions such as producing enzymes, hormones and other substance needed for normal growth and development.

Overweight and Obesity are linked with overconsumption of energy intake. Obesity has rapid consequences on children's health resulting in respiratory and metabolic abnormalities. Furthermore, obese children have a five times greater chance to grow as obese adults than non-obese children and hence are at higher threat of developing cardiovascular diseases such as diabetes, hypertension, high blood pressure etc (Pedreschi et al., 2024).

Childhood undernutrition can lead to prolonged and irreversible consequences, including hindered physical growth and cognitive development. Additionally, undernutrition may

result in diminished sensory motor skills, and reproductive health and boost children's susceptibility to infections and genetic disorders. Furthermore, undernutrition contributes to escalating healthcare expenses, reducing the quality of adult life and decreasing economic growth resulting in a persistent cycle of poverty and disease. Also, hidden hunger represents a significant threat to health, especially affecting children and pregnant women in low-middle-income countries. The health outcomes of micronutrient deficiencies encompass compromised physical growth, weight loss, increased vulnerability of the immune system, neurological conditions and cardiovascular disease(Vassilakou, 2021).

FIGURE 2. 3: GLOBAL TRENDS IN CHILDHOOD MALNUTRITION



Source: (UNICEF/WHO/World Bank Group – Joint Child Malnutrition Estimates 2023 edition)

Childhood malnutrition remains a critical global health challenge, affecting approximately 148 million children under five by stunting followed by 45 million children affected by wasting and 37 million children affected by overweight in 2022, representing 22.3%, 6.8 % and 5.6 % respectively of this demographic worldwide. This troubling figure states the importance of implementing effective measures to combat malnutrition on a global scale.

As per the data stated by (UNICEF/WHO/World Bank Group – Joint Child Malnutrition Estimates 2023), the prevalence of malnutrition differs significantly across regions, with Africa and Asia performing the worst of the crisis. In particular, the data indicates that in 2022, more than half of all children under five are affected by stunting followed by 70% of all children under five affected by wasting and almost half of all children affected by overweight lived in Asia. While some areas have improved, the overall average rate of stunting reduction globally is only 1.65% per year, which is not enough to reach the

Sustainable Development Goal (SDG) target of reducing the rate of stunting to 88.9 million children by 2030. To achieve this target, an average rate of reduction of 6.08% is needed, highlighting the need for setting up nutrition program initiatives.

A global overview of malnutrition prevalence in children under five, highlighting significant variations across different countries. Studies from South Sudan, Pakistan, Panama, Ghana, Malawi, Bhutan, and Indonesia reveal diverse rates of wasting, stunting, and underweight. Notably, Ghana exhibits particularly high rates of wasting and underweight, while Panama reports a significant prevalence of overweight alongside underweight. The data underscores the persistent challenge of childhood malnutrition worldwide, with both undernutrition and overnutrition presenting concerns (Table 2.4)

TABLE 2. 4: GLOBAL PREVALENCE OF MALNUTRITION

Sr.no.	Author	Year	Place	Age Group	Prevalence
1.	(Campbell et al., 2018)	2018	Bhutan	6-23 months	Wasting- 9 % Stunting-15 % Underweight-5 %
2.	(Ahmad et al., 2018)	2018	Indonesia	6-24 months	Wasting- 9 % Stunting- 15% Underweight- 5 %
3.	(Walters et al., 2019)	2019	Malawi	0-23 Months	Wasting- 3.7 % Stunting-30.8 % Underweight-9.9 %
4.	(Anin et al., 2020)	2020	Ghana	6-23 months	Wasting- 14.1 % Stunting- 33.2% Underweight- 27 %
5.	(Cheikh Ismail et al., 2022)	2020	UAE	0-24 months	Wasting- 8 % Stunting- 15%
6.	(Kiarie et al., 2021)	2021	South Sudan	6-59 months	Wasting- 2.3% Stunting-23.8% Underweight-4.8%
7.	(Khaliq et al., 2022)	2021	Pakistan	0-5 years	Wasting- 3.1% Stunting-14.3% Underweight-2.7%
8.	(Ibrahim Khaleel et al., 2023)	2023	Iraq	6-24 months	Wasting- 8.6 % Stunting-14.5 %

9.	(Pedreschi et al., 2024)	2024	Panama	Under-5 years	Underweight- 15.3% Overweight-10.2 %
10.	(Amoah et al., 2024)	2024	Ahafo Region, Ghana	Under-5 years	Wasting- 33.9% Stunting-13.9% Underweight-35.9%

The burden of undernutrition remains shockingly high affecting child growth and survival ratio, particularly in Low and Middle-Income countries. Moderate to severe malnutrition has been connected with higher mortality rates and globally nearly half of all deaths in under five children are due to undernutrition (Kiarie et al., 2021) (Singh et al., 2021).

However, developing countries have made significant progress in lowering child mortality rates. The Asia-Pacific regions under-five mortality rates have considerably decreased due to advancements in healthcare utilization, education and income. Although, millions of young children in developing nations struggle to grow, as evidenced by steadiness in reducing stunting, wasting and rapidly elevating rates of overweight and obesity. Research shows that child survival interventions are less effective in nations primarily facing the challenges of childhood malnutrition (Singh et al., 2023).

National Trends in Malnutrition

The tribal population in India accounts for 8.6% of the total population and is specifically vulnerable to undernutrition, which is a global health concern. The primary reason is food insecurity resulting in prolonged consequences for children and negatively impacting the nation's overall development. More than half of tribal children under five of age in India are stunted, preventing them from achieving their full growth and development potential. Tribal children are especially prone to undernutrition at a younger age due to a lack of parental awareness regarding essential practices such as breastfeeding, proper nutrition, immunization, and healthcare during illness, proper wash practices. Therefore, assessing the nutritional status of tribal children is of utmost importance as it helps identify malnutrition, which leads to increased mortality and morbidity (Tomaszewska & Kwiatkowska, 2019)

Malnutrition among the Indigenous population is always a persistent public health concern that can pose a threat to any healthcare system. Studies revealed that indigenous populations are more likely to suffer from malnutrition than other populations. According to the UNICEF nutrition report, in 2021 the global rate of stunting in tribal children is 40%,

while the overall rates of stunting, wasting, and underweight are 22.3%,6.8% and 5.6% respectively. In India, the eight states namely Karnataka, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Rajasthan and Odisha are home to about 80% of 5 million children suffering from malnutrition (G et al., 2024).

Nutrition and health of the tribal children continue to be a pressing concern in India. According to the Comprehensive National Nutrition Survey (CNNS) (2016-18), approximately 4.7 million children below 5 years of age experience chronic nutritional deficiencies affecting their survival, growth, learning, performance in school, and productivity as adults. While the prevalence of mild and moderate stunting is similar in tribal and non-tribal children, the prevalence of severe stunting is higher (16% compared to 9%) in tribal children. Furthermore, the percentage of wasting is notably more profound among them as compared to the national average (17.3% vs 21.9 %). Additionally, micronutrient deficiencies are alarmingly high among tribal populations. About 53% of tribal children suffer from anaemia against the national average of 40%. Beyond inadequate dietary intake, multiple factors such as disease, household food insecurity, poverty, an array of factors such as poor infrastructural development, geographical isolation, limited access to public services, and cultural differences often act as barriers to the effective delivery of health and nutrition services being offered by Integrated Child Development Services (ICDS) and National Health Mission (NHM) (Ministry of Tribal Affairs,2020).

The tribal communities are specifically known as a renowned population following distinctive customs and rituals. In addition, they maintain social, cultural, economic and political traits that set them apart from the society in which they reside. The healthcare system among tribals still has critical concerns about the nutritional status of the populations. Due to sociocultural and geographical differences, particularly in this region of India, the effects of malnutrition within the general population may significantly differ from those found in tribal settings (G et al., 2024).

According to one of the studies conducted in Karnataka, the prevalence of stunting showed higher as compared to that of wasting and underweight in tribal children aged 12-23 months. Therefore, chronic malnutrition resulted at peak in tribal setting. Gender of children and education of caregivers were the primary reason to affect the nutrition status of children (G et al., 2024).

Also, one of the studies conducted in Kerala showed that the ratio of malnutrition among tribal children 0-59 months was higher as compared to that of non-tribal children. Hence the high prevalence of stunting underscores the presence of chronic malnutrition among tribal children, highlighting urgent need to enhance healthcare services to this sensitive population (R. & Sri Jayanth, 2022).

The study conducted in Tamil Nadu, says that children from scheduled tribes suffer the most severe malnutrition in almost every indicator with 28% wasting prevalence being a major cause of concern. The study resulted 55.4 % of stunting, exceeding World health Organization severity cut off highlighting a serious public health issue, demanding sustained interventions to reduce malnutrition among under five children (T. et al., 2018).

The study conducted in the Palghar district of Maharashtra concluded that undernutrition remains a severe public health issue in tribal rural areas despite various nutrition programs. Children under 3 were more prone to stunting while older children were having more wasting and underweight. The primary reason for malnutrition is poor socio-economic conditions of the tribal population which requires a comprehensive strategy for combatting malnutrition among tribals (Ghosh & Varerkar, 2019).

TABLE 2. 5: PREVALENCE OF MALNUTRITION IN TRIBAL INDIA

Sr.no.	Author	Year	Place	Age Group	Prevalence
1.	(T. et al., 2018)	2018	Tamil Nadu	Under-5 years	Wasting- 10.4 % Stunting- 55.4 % Underweight-26.9 %
2.	(Senthilkumar et al., 2018)	2018	Coimbatore	0-5 years	Wasting- 21.8 % Stunting- 32.5 % Underweight- 41.3 %
3.	(Ghosh & Varerkar, 2019)	2019	Palghar	Under 6	Wasting- 20 % Stunting- 59 % Underweight- 53 %
4.	(R. & Sri Jayanth, 2022)	2022	Kerala	0-59 months	Wasting- 31 % Stunting- 51.7 % Underweight- 54.8%
5.	(G et al., 2024)	2024	Karnataka	12-24 months	Wasting-6.4 % Stunting- 45 % Underweight- 18.9 %

Regional Trends in Malnutrition

The current statistics of (NFHS 2019- 20) shows, the overall prevalence of stunting, wasting, severely wasted and under-weight are 35.5%, 19.3%, 7.7% and 32.1% respectively nationwide (G et al., 2024). Of the same data set, Gujarat has high rates of childhood malnutrition with 39.7% being underweight, 25.1% being wasted and 39% being stunted which is comparatively higher than the national average. This indicates that Gujarat has a considerably higher prevalence of wasting and severe wasting than India as a whole. Furthermore, Gujarat has observed a hike in severe wasting, rising from 9.5% in NFHS-4 to 10.6% in NFHS-5, highlighting a worsening trend (Umallawala et al., 2022).

Gujarat accounts for 8.1% of the Scheduled Tribe population of the country. The tribal population of Gujarat, numbering 89.17 lakh, constitute 14.8% of the state's population. They are concentrated in the eastern districts, from Mt. Abu on the Rajasthan border in the north to the Dahanu district on the Maharashtra border in the south (Tribal Demography of Gujarat | About Us | Tribal Development Department, n.d.).

Significant tribal populations in Gujarat belongs to districts such as Tapi, Bharuch, Dang, Valsad, Navsari, Surat, Panchmahal, Vadodara, Sabar kantha, Banas kantha and Aravalli. (Kumar Sosa HLChavda & Kumar Sosa HLChavda AsstProf, 2021)

Despite Gujarat's ongoing development, malnutrition remains a significant challenge among vulnerable populations such as backwards and tribal children and women (Kumar Sosa HLChavda & Kumar Sosa HLChavda AsstProf 2021).

According to one of the research conducted in Narmada district, Gujarat where 82% of the population are tribal highlights the prevalence of stunting, wasting and underweight under two was 34.5 %, 32.2 % and 39.7 % respectively. This trend is even higher than the regional prevalence (Rana et al., 2020).

In one of the regional studies conducted in the Devbhumi Dwarka district of Gujarat, the ratio of wasting, underweight and stunting was 14%, 17% and 32% respectively in children under two years of age (Saha et al., 2022).

One of the studies evaluated the nutritional status of preschool children from three districts with distinct tribal groups; Bhil, Dhodia and Kinnaura residing in Barmer-Rajasthan, Valsad-Gujarat and Kinnaur-Himachal Pradesh respectively, using head circumference measurements. The Dhodia tribe is the largest tribal group in Gujarat, belonging to the

Valsad district. The comparative study reveals significant malnutrition among three tribes of which Bhil children, contribute 28.3% of both boys and girls indicating equal prevalence across genders. 33.6 % of boys and 31.3 % of girls suffer from malnutrition in Dhodia tribe. Whereas, the Kinnaura tribe shows the least trend of malnutrition with 13.5% of boys and 17.2 % of girls. Overall, the Dhodia tribe has the highest malnutrition rates, followed by the Bhil and Kinnaura tribes (Kumar Kshatriya et al., 2024).

Hence, the above studies give enough evidence that poor Infant Young Child feeding Practices (IYCF) lead to malnutrition specifically identified as stunting, wasting, and overweight. These growth problems during early childhood are associated with heightened susceptibility to long-term outcomes encompassing physical health, cognitive development, and overall well-being. Moreover, global guidelines emphasize the critical roles of not only what the children should be fed but also focusing on how they are fed, ensuring appropriate infant and young child nutrition (M. M. Black et al., 2022).

However, along with appropriate feeding practices of the complementary foods, there is a need to focus on how parents are feeding their child in association with various parental feeding styles. The nutritional status of the children is significantly influenced by parental feeding styles, playing a crucial role in addressing malnutrition (Fujianti et al., 2015).

Role of parents in IYCF

To optimize how infants and young children are fed, both parents need to be actively involved in feeding practices. Parental involvement means direct interaction between a parent and child during activities like feeding, where parents take responsibility for the child's care and well-being. While both parents are crucial, mothers are often the primary caregivers, especially when it comes to feeding infants. Mothers typically spend more time feeding and interacting with their young children compared to fathers. Traditional family roles often assign food-related tasks (meal planning, cooking, feeding) and childcare to mothers, while fathers are primarily responsible for financial support. However, proper infant and young child feeding (IYCF) goes beyond just a mother or caregiver providing food; it also involves the relationship between the child and the caregiver. From birth, infants communicate their hunger to mothers through behaviors like fussiness and sucking, based on their hunger levels and the mother's milk supply. A mother's response to these cues depends on the signals from the baby regarding timing, amount, preferences, pace,

and ability to eat, as well as the mother's understanding of these signals and the baby's characteristics (Nestle Nutrition Institute, 2019).

A qualitative study was conducted in Lesotho, South Africa, regarding what degree fathers were involved in infant care and feeding, among children aged 1 to 12 months. The study concluded that traditional fathers were involved in routine childcare and feeding as primarily the mother's responsibility. Their involvement was often seen as helping the mother or as a means of earning income. Furthermore, these fathers generally lacked understanding regarding their potential roles in childcare and feeding practices. Fathers commonly believe their main role is financial support, while mothers are responsible for feeding and general childcare. The study's findings suggest that educating fathers could increase their awareness of their crucial role in infant care, which could lead to improved infant feeding, growth, and overall development (Kaloro et al., 2024)

A study conducted in Karnataka, on paternal perspectives towards infant and young child feeding (IYCF) of children ages 24 months or less, indicates that fathers significantly contribute to the well-being of mothers and their children. Additionally, fathers' parenting abilities and how they feed their children impact the child's development and eating habits. The findings of this study concluded that fathers demonstrated some understanding of young children's nutritional requirements and expressed a positive interest in learning more about and participating in infant and young child feeding (IYCF). They also reported making efforts to provide care related to IYCF within their perceived capabilities (Mithra et al., 2023)

A study carried out in Ethiopia, on fathers' engagement in improving Infant and Young Child feeding practices, illustrated that both paternal and maternal behaviour change communication (BCC) programs improve infant and young child feeding (IYCF) practices, with increased paternal knowledge leading to better dietary diversity, although the additional impact on practices was not statistically significant (Han et al., 2019)

Another study conducted in Ethiopia, on assessment of Knowledge attitude and practices of mothers regarding IYCF practices, highlighted that father's educational status, involvement and support notably influenced mothers' knowledge on IYCF practices. Regular interaction between parents about IYCF and antenatal care follow ups are crucial for improving feeding practices and knowledge among mothers (Assefa et al., 2021).

Therefore, the way parents feed their children, both mothers and fathers, play a crucial role in shaping their dietary behaviors and health. Studies show that maternal and paternal feeding styles tend to be related, implying a common approach within the family. Consequently, these shared feeding practices can have a significant impact on children's eating habits and their resulting dietary health (Benjamin-Neelon & Neelon, 2020).

Parental Feeding Styles

Parental Feeding Styles are built by the attitudes that characterize parental actions to maintain or modify child eating behaviors, and are based on degree of parental control and responsiveness shown during child feeding. How parents feed their children isn't just about the food itself. It's also about the overall way they interact during meals. This includes how they make their child feel during mealtimes (Hughes et al., 2021).

Parent feeding styles offer a comprehensive approach to evaluate child feeding practices, as they integrate behavioral, social, and nutritional factors that influence the entire family's eating process, from meal planning to consumption. (Arlinghaus et al., 2018).

Beyond the feeding of complementary foods, the relationship and interaction between caregiver and child during feeding, often referred to as feeding style, plays a significant role in shaping a child's dietary intake (Wondafrash et al., 2012).

A caregiver's feeding style is defined as the **emotional environment** that caregivers create when a child is eating and can have a **positive or negative influence on children's eating behaviour** (Hughes et al., 2005).

Infants and toddlers learn to enjoy food flavours and textures as a consequence of repeated exposure to a variety of foods in early life; the caregiver’s responsiveness to their hunger cues and emotional states; and the caregiver’s beliefs and attitudes regarding child nurture. The relationship established with food also depends on family characteristics, nutritional knowledge, social influences, cultural customs, and food contexts (Berti & Socha, 2023).

Parents have a direct influence on children's dietary quality and are significantly shaped by their feeding styles, which are rooted in broader parenting frameworks. These frameworks were developed originally by Baumrind and extended by Maccoby and Martin, categorizing parenting behaviors based on two key dimensions; demandingness (the extent to which parents show control, maturity demands, and supervision) and responsiveness (the

extent to which parents show affective warmth, acceptance, and involvement) (Arlinghaus et al., 2018).

These dimensions give rise to four distinct parenting styles (Figure 2.4); (Shloim et al., 2015), (Hughes et al., 2005)

1. **Authoritative:** This style is defined by a combination of **high demandingness,** characterized by clear rules and expectations, and **high responsiveness**, marked by sensitivity to the child's needs and perspectives.
2. **Authoritarian:** This style features **high demandingness**, with strict rules and control, but **low responsiveness**, exhibiting limited consideration for the child's individual needs.
3. **Indulgent:** This style involves **low demandingness**, with few rules or restrictions, coupled with **high responsiveness**, demonstrating significant engagement with and attention to the child's needs.
4. **Uninvolved:** This style is characterized by both **low demandingness** and **low responsiveness**, indicating a lack of both control and emotional engagement.

Parental feeding styles play a crucial role in shaping children's eating behaviors and health outcomes. These styles authoritarian, authoritative, indulgent, and uninvolved, differ in their approaches and effects on child nutrition and behavior.

Authoritarian Feeding Style

This style emphasizes strict rules and high demands but offers little emotional support or responsiveness. Caregivers often enforce rigid eating practices, such as requiring children to finish meals or using food as a reward. Research suggests that these practices may lead to unhealthy eating habits and a strained relationship with food due to increased pressure on children (Edelson et al., 2014) (Colson, 2021).

Authoritative Feeding Style

The authoritative style combines high demands with high responsiveness. Caregivers encourage healthy eating by modelling positive behaviors, involving children in meal decisions, and allowing them some autonomy in food choices. This approach has been

linked to healthier diets, better self-regulation of appetite, and positive health outcomes in children (Edelson et al., 2014) (Chen et al., 2021).

Indulgent Feeding Style

Indulgent feeding is characterized by low demands but high responsiveness. Caregivers give children significant freedom in deciding what and how much to eat. While this approach creates a nurturing environment, it is often associated with higher body mass index (BMI) in children, likely due to overconsumption of unhealthy foods (Tauriello et al., 2024) (Chen et al., 2021).

Uninvolved feeding Style

Uninvolved feeding involves low demands and low responsiveness. Caregivers provide minimal guidance or structure around eating, which can result in poor dietary habits and negative health outcomes for children. This lack of involvement may hinder the development of healthy eating behaviors (Cooper, 2021) (Colson, 2021).

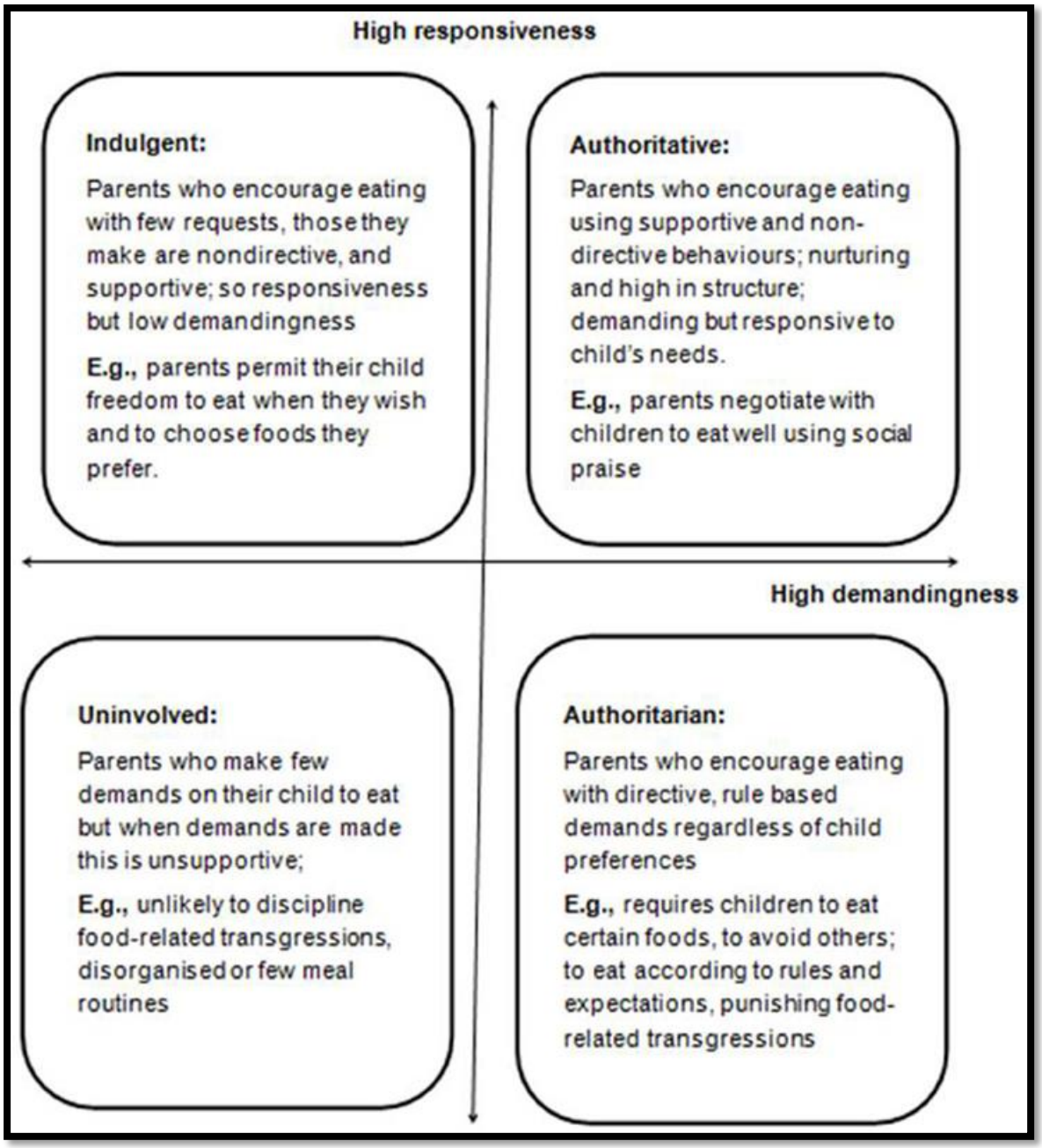
Measuring Parental Feeding Styles:

The Feeding Practices and Structure Questionnaire (FPSQ) is a tool designed to measure specific parental feeding behaviors across infancy and childhood. It examines concrete actions, such as adherence to feeding schedules versus feeding on demand, and the use of food for emotional regulation. This instrument has demonstrated consistent internal reliability and validity in multiple studies, effectively capturing the direct impact of parental feeding practices on children's dietary habits (Jansen et al., 2014, 2015, 2016, 2021).

The Child Feeding Style Questionnaire (CFSQ) assesses the overarching patterns of parental feeding, focusing on the attitudes and behaviors that shape a child's eating. It categorizes parents into distinct feeding styles, such as authoritative, authoritarian, permissive, and uninvolved, which reflect the parent's general approach to feeding. The CFSQ, alongside the Parent Feeding Style Questionnaire (PFSQ), helps to understand the relationship between parental feeding approaches and children's eating behaviors. The PFSQ, in particular, quantifies specific parenting behaviors, including emotional and instrumental feeding, encouragement, and control, using 27 items across four scales, and has shown good reliability (Ultremari et al., 2020).

Although both the FPSQ and CFSQ contribute to understanding the link between parental feeding and child dietary outcomes, the FPSQ allows for longitudinal assessment of feeding practices, while the CFSQ focuses on classifying distinct parental feeding styles.

FIGURE 2. 4: TYPES OF PARENTAL FEEDING STYLES



(Hughes et al., 2005)

Global studies on Parental Feeding styles

A cross-sectional study conducted in Indonesia, on parental feeding styles and their association with the nutritional status of children above 2 years of age, highlighted that parental feeding styles significantly influence children's nutritional status, as evidenced by the study's weak positive association with body weight for age. The study further concluded that educating parents on effective feeding practices is crucial to combat malnutrition and ensure balanced nutrition for children aged 2 to 5 years (Marchianti et al., 2024).

Another study conducted in the Philippines stated that maternal characteristics, including feeding styles, significantly influence infant nutrition. Effective parental feeding practices, particularly breastfeeding, are crucial in preventing malnutrition, ensuring healthy weight gain, and promoting overall infant health during critical developmental stages (Ngaya-An, 2022).

A study conducted in Ethiopia emphasized that effective parental feeding styles can improve dietary intake and nutritional quality, thereby reducing malnutrition risks for mothers and children, and ultimately promoting better health and growth in developing countries (Tafese & Kebebu, 2017).

A finding of the study conducted in Mexico, on parental feeding styles and complementary feeding practices among 6-9 months of children, resulted that less than half (43.7%) of the children aged 6 months had received adequate complementary feeding and only 8% of the children aged 9 months had received adequate complementary foods. Interestingly, 90% of the mothers followed a responsive feeding style. The study highlighted that a responsive parental feeding style, which involves paying attention to the infant's fullness cues, was linked to better feeding at 6 months. Whereas, pressuring children to eat, led to poor growth outcomes. Encouraging and educating parents to identify hunger signals can improve child-feeding practices (Kim-Herrera et al., 2021).

Evidence consistently demonstrates that appropriate parental feeding practices and behaviours are positively associated with optimal growth outcomes in infants and young children Breastfeeding and complementary feeding practices were positively associated with child height-for-age in most of the countries studied (Wondafrash et al., 2012).

A study by conducted by (Mahmood et al., 2021), stated that poor dietary habits established during childhood might persist into adulthood, increasing the risk of developing obesity

and Diabetes Mellitus. It highlights that parental child-feeding behaviors should receive more attention in research studies as modifiable risk factors, which could help to design future dietary interventions and policies to prevent dietary-related diseases. Parental feeding practices found that role models can play a really important part in shaping children's eating habits.

As cited by (Costa & Oliveira, 2023), their study on Parental Feeding Practices and Children's Eating Behaviours of children, showed that parents play a vital role in children's feeding practices. Parental influence on children's eating behaviours starts even before birth, with perinatal exposures. Throughout childhood, parents are the primary caretakers responsible for shaping their children's food environment t and the interactions they have with their children during mealtimes plays a significant role in their nutritional status.

A cluster-based analytic study conducted in Spain, regarding the parenting styles and feeding styles of children aged 12- 36 months followed by the mothers, reported that caregivers who exhibited higher responsiveness, emotion regulation, encouragement of balance and variety, use of food as a reward, involvement, and health-based food restrictions were more likely to observe increased food-seeking behaviors in their children. **The authoritarian** cluster showed low levels of nurturance and behavioural control, whereas **the Authoritative** showed a high level of nurturance and behavioural control. However, **Authoritative parents** showed positive results in promoting healthy food intake to their children. Additionally, caregivers who actively engage in responsive feeding practices and promote a balanced, involved approach to nutrition tend to foster more positive food-seeking behaviors in children & better nutritional outcomes (Van Der Horst & Sleddens, 2017).

A study conducted in three different regions of the United States to examine the parental styles, food parenting practices and dietary intakes of preschoolers aged 3-5 years, revealed that positive parenting practices were notably associated with the children's healthier dietary intakes. It was found that **Authoritative parents** positively influenced children's fruit consumption, while **Authoritarian and indulgent styles** were associated with less healthy dietary intakes among preschoolers (Chen et al., 2021).

Another study conducted in the United States, on feeding styles and practices and children's eating behaviours among mothers of children 12-36 months old, showed that **Authoritative parents** actively engaged in healthy eating and empowered their children with food choices

and meal participation. **Authoritarian mothers** tend to employ food as a reward or punishment, emphasizing complete plate consumption. **Indulgent mothers** prioritize shared meals and child autonomy in portion control, avoiding food restrictions. **Uninvolved mothers**, conversely, focus on restrictive feeding to manage their children's weight. Furthermore, **parental demandingness** increases with the child's age, reflecting evolving developmental needs. These findings underscore the significant relationship between parenting styles and reported feeding behaviors (Edelson et al., 2014).

A study on Parenting Feeding Styles and its associated health outcomes in children conducted in Tennessee state, USA, concluded that, **Indulgent parenting** was found to be associated with higher body mass index (BMI) in children when compared to other parenting styles. **Authoritative and authoritarian** parenting resulted in higher Dietary Approaches to Stop Hypertension (DASH) scores. (Colson & Hutson, 2021).

A cross-sectional study conducted in Brazil, on exclusive breastfeeding and parental styles in children, examined that parental feeding styles significantly influences breastfeeding duration. Parents who are **authoritative, authoritarian and indulgent** to their children, showed a longer exclusively breastfeeding durations, while uninvolved parenting was linked to poor breastfeeding rates. Interventions promoting responsive feeding practices could help improve breastfeeding outcomes and prevent feeding difficulties (Maximino et al., 2023).

A study conducted in Helsinki, on association between parental feeding styles and feeding difficulties, among the mothers of children aged 1-6 years, revealed that the **indulgent** parental feeding style was the most common with the prevalence of 40%, followed by **authoritative** feeding style with 31.1%, **authoritarian** feeding style with 23.7% and **uninvolved** feeding style with 5.1% (Fontanezi et al., 2024).

A study in Brazil, on parental feeding styles, attitudes its association with feeding difficulties in children aged 1 to 7 years, identified four parental feeding styles and their prevalence **Indulgent (44.2%), Authoritarian (25%), Authoritative (24%) and Uninvolved (6.9%)**. Among all the feeding styles, **indulgent parenting styles** were associated with decreased feeding difficulties in children, suggesting that positive feeding practices can mitigate malnutrition. Understanding parental roles and styles is crucial for developing effective interventions to address children's nutritional needs (Hasbani et al., 2023).

A study based on a preliminary descriptive analysis of caregiver and child weight, parenting and feeding styles, and feeding practices in a small American Indian sample, indicated that caregivers generally reported healthy feeding practices. Regarding parenting styles, caregivers predominantly exhibited responsive feeding. In terms of feeding styles, a majority **(52.2%) were classified as indulgent**, followed by **21.7% as authoritative and uninvolved**, and **4.3% as authoritarian.** These preliminary findings highlight the need for further, more comprehensive research to better understand the complex interplay of caregiving, parenting, and feeding styles within American Indian communities and their impact on child weight status (Hughes et al., 2017).

A study conducted in Java, Indonesia, on parents' feeding style among children 6-9 years showed, that parental feeding style significantly influences children's nutritional intake, impacting malnutrition, particularly stunting. **Authoritative styles** promote healthy eating patterns, while neglectful styles can exacerbate nutritional deficiencies. Educating parents on effective feeding practices is crucial for improving children's dietary habits and overall health. Furthermore, the author revealed that effective feeding requires parents to be both responsive (paying attention to the child's hunger) and demanding (providing structure and support). This combination leads to better food intake, which is crucial for growth. How parents respond to their children's hunger directly affects their eating habits. A supportive food environment, where parents quickly respond to hunger cues, helps children learn to recognize when they are full. This quick response helps with short-term hunger control (Afiatna & Maryanto, 2021).

Therefore, majority of the studies concluded that the **Authoritative feeding style** is generally considered the most optimal feeding style, as it balances the expectations of parents along with the child's individual needs and preferences. These styles establish the emotional atmosphere during mealtimes, and specific food-related parenting behaviours are implemented within this broader feeding style framework (Vollmer, 2019).

Hence, drawing upon the extensive global literature on parental feeding styles, a significant void is evident in the national set up. Moreover, the prevailing focus on older children necessitates an investigation into the feeding practices of younger children, particularly during the critical complementary feeding stage. To address this identified gap, the current study was specifically designed to explore the interplay between parental feeding styles and the quality of complementary feeding in children aged 6-24 months.

METHODOLOGY

Poor dietary intake is a key reason for undernutrition in young children. Ensuring they receive proper nutrition between the ages of 6-24 months is a top global health priority (Forsido et al., 2019).Since young children rely entirely on their parents for feeding, the knowledge and practices of parents regarding Infant and Young Child Feeding (IYCF) play a crucial role in shaping child's nutrition. Therefore, parents need to understand not only proper feeding practices but also build lifelong healthy eating habits. To achieve accurate results in any research, having a clear and well-designed methodology is crucial. The methodology provides a logical approach for conducting scientific investigations. The present study was planned for **"Parental feeding styles and diet quality of complementary foods among 6-24 months children in Tribal Pardi block of Valsad district of Gujarat."**

OBJECTIVE OF THE STUDY

Broad objective:

To study the feeding styles followed by parents of children aged 6-24 months in 3 selected study areas.

Specific objective:

1. To assess the feeding practices followed by the parental among children of 6-24 months.
2. To assess dietary quality of complementary foods in children aged 6-24 months.
3. To assess the nutritional status of children 6-24 months.

STUDY APPROVAL

This study was approved by the Institutional Ethics Committee for Human Research (IECHR) under protocol no. IECHR/FFCSc/M.Sc./10/2024/32 before the commencement of the study (Annexure 3.1). Parents were explained the study by giving information letter regarding the study and written informed consent was obtained from them (Annexure 3.2 and Annexure 3.3).

STUDY AREA

The execution of the study was in the tribal block Pardi of Valsad District in Gujarat (FIGURE 3. 1).

ABOUT VALSAD

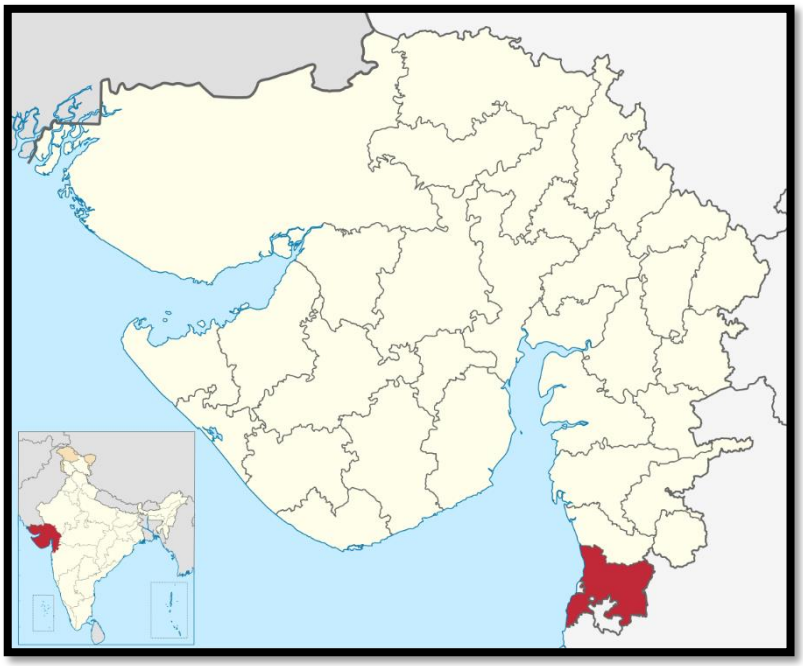
Valsad is situated in the southern part of Gujarat, sharing borders with Vapi to its north, and the state of Maharashtra and the union territory of Daman to its south. Geographically, Valsad is positioned approximately 20.63°N latitude and 72.93°E longitude, with the older city area about 4 kilometers inland from the Arabian Sea. According to the 2011 Census of India, the Valsad district had a total population of 1,705,678, comprising 887,222 males and 818,456 females. The district's population density was 567 persons per square kilometres, covering a total area of 3,008 square kilometers. The overall literacy rate for the Valsad district was 88.84%, with male literacy at 92.65% and female literacy at 84.31%. The child sex ratio was 925 females per 1,000 males (Valsad District Population Census Data, 2025).

ABOUT THE LOCATION OF THE STUDY

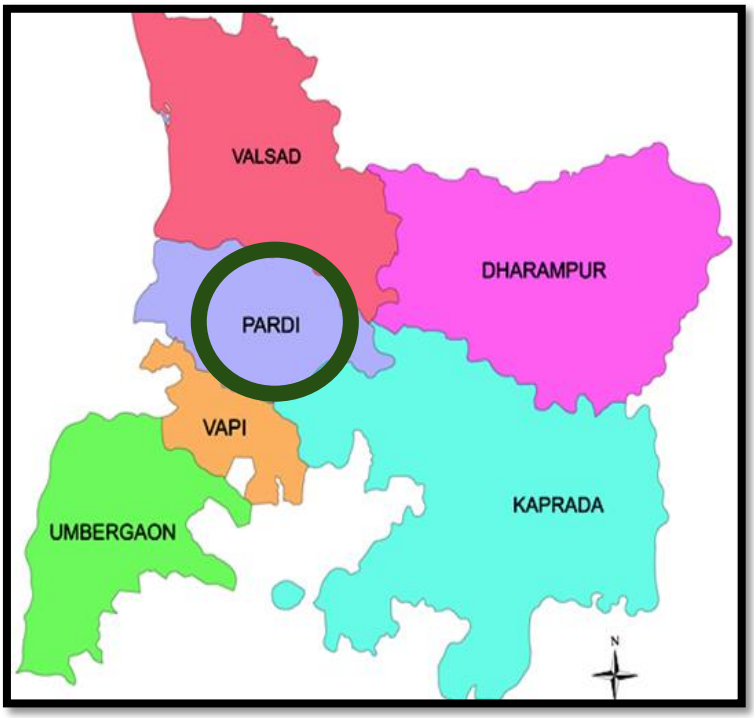
Valsad District has 5 blocks namely Vapi, Dharampur, Kaprada, Umargam and Pardi. Out of which Pardi Taluka was purposively selected to carry out research.

According to the 2011 Census of India, Pardi Taluka had a total population of 518,814, with 282,572 males and 236,242 females. The overall sex ratio was 836 females per 1,000 males. The population of children aged 0-6 years was 61,669, representing 12% of the total population, with a child sex ratio of 895 (32,536 male children and 29,133 female children). The total literacy rate in Pardi Taluka was 87.54%, with male literacy at 81.52% and female literacy at 71.89%. The taluka's demographic composition included 2.4% Scheduled Caste (SC) and 32.7% Scheduled Tribe (ST) populations (Census Data, 2011).

FIGURE 3. 1: STUDY LOCATION



Map of Gujarat highlighting Valsad District



Map of Valsad District highlighting Pardi Taluka

STUDY DESIGN

A community-based cross-sectional study was conducted between November 2024 and February 2025 to examine parental feeding styles and the quality of complementary foods for children aged 6-24 months in the Tribal Pardi block of Valsad district. Using purposive sampling, 10 villages within a 15 km radius of Pardi Taluka were selected (TABLE 3. 1). Location of the villages is showed in (FIGURE 3. 2). Participants from these villages were chosen through the Snowball Sampling Technique. In total, 269 children and their parents took part in the study (FIGURE 3. 3).

FIGURE 3. 2: LOCATION OF THE VILLAGES

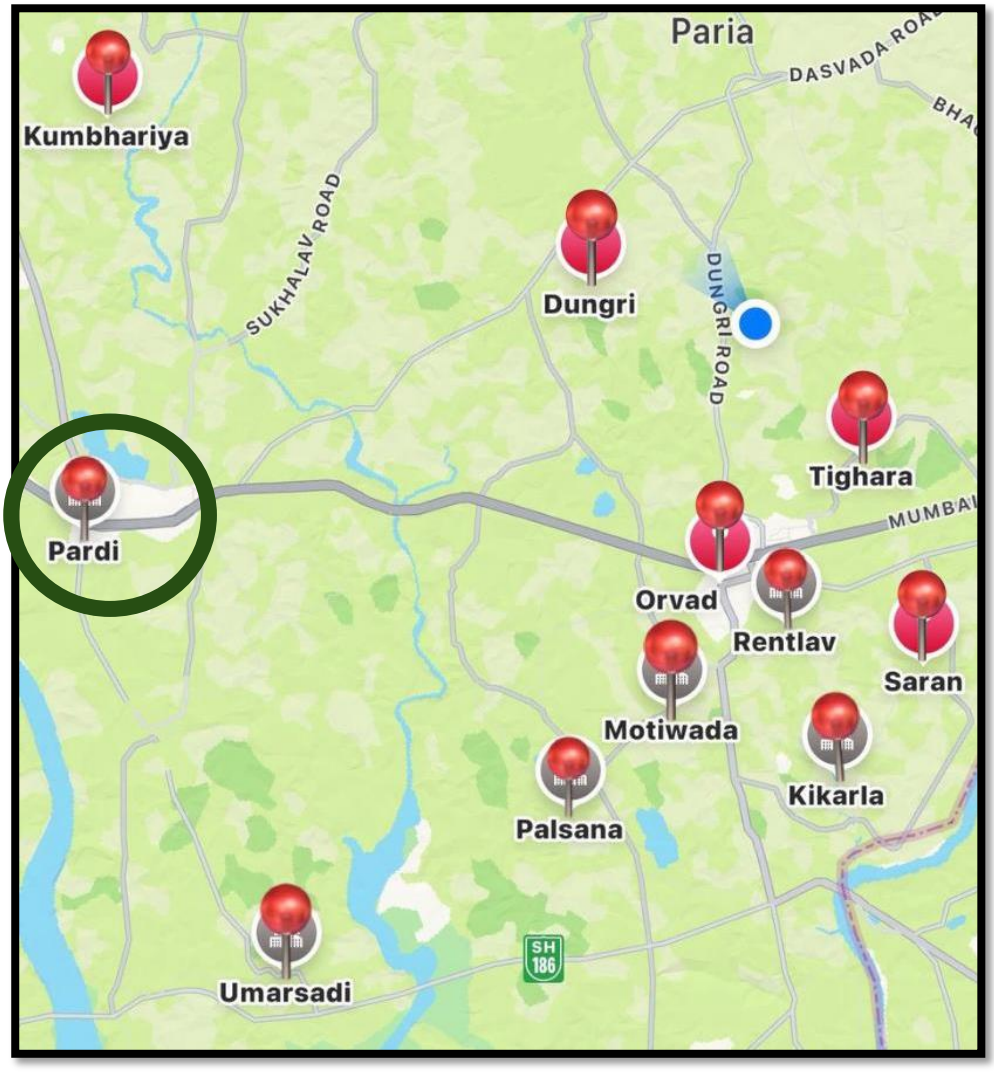
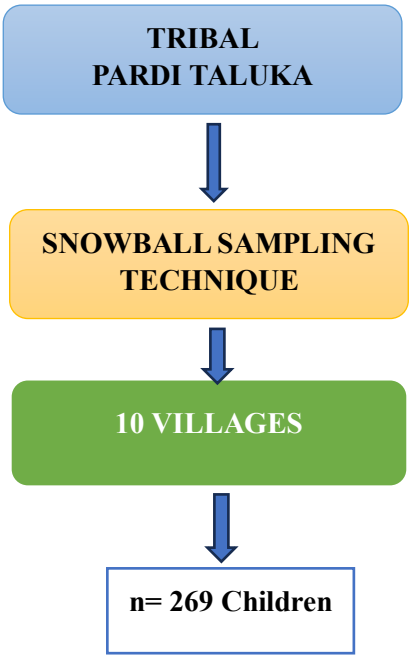


TABLE 3. 1: LIST OF 10 VILLAGES FROM PARDI TALUKA

Sr. No.	Name of Villages	Total number of Samples Collected
1.	Orwad	**30**
2.	Rentlav	**20**
3.	Tighra	**26**
4.	Saran	**24**
5.	Motiwada	**25**
6.	Palsana	**21**
7.	Dungri	**26**
8.	Kumbhariya	**22**
9.	Kikarla	**14**
10.	Umarsadi	**61**
		n =269

FIGURE 3. 3: STUDY PLAN



SAMPLE SIZE CALCULATION

Based on the prevalence of Minimum Dietary Diversity in children aged 6- 23 months in Gujarat according to NFHS-5 (2019-21), the sample size of the present study has been calculated by adopting the formula;

$n=Z^2\alpha/2 \times PQ/ \Sigma^2$

Where, P= Prevalence rate of MDD

= 17.8% = 0.178

Q = 1- P, = 0.822

α = level of Significance (type 1 error) $Z^2\ \alpha/2 = 4\Sigma$ = Allowable error 5%

Then n= 4 × 0.178 × 0.822 / 0.0025 = 225

10% non-response rate = 225 × 10/100 = 22.5

= 225+22.5 = 247.5

= **250**

STUDY CRITERIA

Inclusion Criteria

- Children who have completed 6 months and are < than 2 years of age.
- Both the father & mother of the child willing to participate in the study.
- Respondents should be residing in the selected study area.

Exclusion Criteria

- Children suffering from any medical complications.
-

OUTCOME PARAMETRES

Primary Outcome

- Insights into various parental feeding styles/techniques

Secondary Outcomes

- Diet quality of the complementary feeds
- Nutritional status of the children in 3 selected areas of the study.

DATA COLLECTION AND TOOLS

Data on socio-economic status, feeding habits, meal frequency, food variety, and nutrient adequacy were collected through standardized questionnaires and dietary assessments (Table 3.2)

TABLE 3. 2 : TOOLS AND TECHNIQUES FOR DATA COLLECTION

PARAMETERS	TOOLS
Anthropometric Measurements Weight Height	 Infant weighing Scale Infantometer
Socio-Economic Status	Semi-structured questionnaire
KAP on Complementary Information of Parents	Semi-structured questionnaire
Parental Feeding Styles	Feeding Practices and Structure Questionnaire
Child Information	Structured questionnaire
Complementary feeding Information	Structured questionnaire
Support domains in IYCF	Structured questionnaire
Diet Diversity	DQQ (Diet Quality Questionnaire) for India
Food frequency	FFQ (Food frequency Questionnaire) according to NOVA classification

Background Information

Data on the socio-economic profile of families was collected through a structured questionnaire. This included details about religion, caste, education and occupation of both parents, family size, number of children, monthly family income, additional income sources, type of house, and toilet facilities. The socio-economic status was assessed using the updated 2024 Kuppuswamy Classification. (Table 3.3, 3.4, 3.5, 3.6).

Table 3. 3:THE SCORING SYSTEM FOR EDUCATION

Education	**Score**
Profession or Honors	7
Graduate	6
Intermediate or diploma	5
High school certificate	4
Middle school certificate	3
Primary school certificate	2
Illiterate	1

(Source: Mandal & Hossain, 2024)

Table 3. 4: THE SCORING SYSTEM FOR OCCUPATION

Occupation	**Score**
Legislators, Senior Officials and Managers	10
Professionals	9
Technicians and Associate Professionals	8
Clerks	7
Skilled Workers and Shop and Market Sales Workers	6
Craft and Related Trade Workers	5
Skilled Agricultural and Fishery Workers	4
Elementary Occupation	3
Plant and Machine Operators and Assemblers	2
Unemployed	1

(Source: Mandal & Hossain, 2024)

TABLE 3. 5: TOTAL MONTHLY INCOME OF THE FAMILY AND SCORE

Monthly Family Income	Score
2,13,814 and above	12
1,06,850-2,13,813	10
80,110-1,06,849	6
53,361-80,109	4
31,978-53,360	3
10,703-31,977	2
<10,702	1

(Source**:** Mandal & Hossain, 2024)

TABLE 3. 6: KUPPUSWAMY SOCIO-ECONOMIC CLASS

Score	Socioeconomic class
26-29	Upper Class (1)
16-25	Upper middle class (2)
11-15	Lower middle class (3)
5-10	Upper lower class (4)
<5	Lower (5)

(Source**:** Mandal & Hossain, 2024)

Anthropometric data

Anthropometry involves measuring a person's physical dimensions to evaluate growth and development. These measurements are key to understanding nutritional status and identifying malnutrition. For children, weight and height were measured using standard methods.

Weight

Children's weight was measured using an electronic infant weighing scale with 100g accuracy. The child was placed on their back in the center of the scale pan. To ensure accurate readings, the scale was placed on a flat surface, set to zero before weighing, and weight was recorded after the digital display stabilized. Children wore minimal clothing, and items like footwear and accessories were removed. Weight was recorded in kilograms, rounded to the nearest 100g.

Height

For children under 2 years old, height was measured using an infant meter. The child was laid on their back with their head resting against the fixed headboard, ensuring proper alignment. The mother helped position the child by holding their head, while an imaginary vertical line from the ear canal to the lower edge of the eye socket was kept parallel to the board. The child's eyes were focused on the ceiling during the process.

Anthropometric Indicators

The weight and height measurements were analysed to assess children's nutritional status using three key indicators:

- Weight for age (WAZ)
- Height for age (HAZ)
- Weight for height (WHZ)

These indicators were compared with the 2006 WHO Growth Standards. The analysis was done using WHO Anthro software, and the z-score cut-off values were used to classify children into different nutritional status categories (Table 3.7).

TABLE 3. 7: WHO CLASSIFICATION OF NUTRITIONAL STATUS

Weight for age Z score (WAZ)	
-1 SD to +1 SD	Normal
≤-1 SD to <-2 SD	Mild under weight
≤-2 SD to <-3 SD	Moderately under weight
≤-3 SD	Severely under weight
Weight for height Z score (WHZ)	
-1 SD to +1 SD	Normal
≤-1 SD to <-2 SD	Mild wasted
≤-2 SD to <-3 SD	Moderately wasted
≤-3 SD	Severely wasted
Height for age Z score (HAZ)	
-1 SD to +1 SD	Normal
≤-1 SD to <-2 SD	Mild stunted
≤-2 SD to <-3 SD	Moderately stunted
≤-3 SD	Severely stunted

(Source: Radhakrishnan & Nagaraja, 2023)

Knowledge Attitude and Practices of Parents on Complementary Feeding

A semi-structured questionnaire (Annexure 3.4) was used to collect information about complementary feeding. It included questions on the types of foods introduced, the timing of introduction, age-appropriate feeding practices, the parent's involvement during feeding, the number of meals given daily, and how the food was offered to the child. This helped gather detailed information about caregivers' feeding practices, which is essential for understanding the effectiveness of complementary feeding strategies.

QUALITY OF CHILDREN'S DIET

Diet Quality Questionnaire (DQQ)

The Diet Quality Questionnaire (DQQ) (Annexure 3.4), developed by the Global Diet Quality Project, is an internationally recognized tool for assessing diet quality at the population level. It is a quick and practical method for monitoring dietary patterns. In this study, the DQQ was used to evaluate children’s diets, focusing on the types of foods consumed and the overall quality of their nutrition (Annexure 3.4).

Food Frequency Questionnaire (FFQ)

The Food Frequency Questionnaire (FFQ) (Annexure 3.4) was designed based on the NOVA classification system to study ultra-processed food consumption among children aged 6 months to 2 years. It included commonly consumed ultra-processed foods and tracked how often these foods were eaten. This method provided a clear understanding of the prevalence of ultra-processed foods in children's diets and their overall dietary patterns (Annexure 3.4).

The FFQ classified foods into four groups:

1. Minimally Processed Foods
2. Sugar, Salt, Fats, and Oils
3. Processed Foods
4. Highly Processed Foods

PARENTAL FEEDING STYLES

The Feeding Practices and Structure Questionnaire (Annexure 3.4) was used to study early feeding practices. It evaluated behaviors like non-responsive feeding and how structured the mealtime environment was. This tool also identified different parenting styles related to feeding, such as authoritative, authoritarian, permissive, and responsive. These insights helped understand how parental behaviors influence children's eating habits and nutritional health. FPSQ Scoring was done on the basis of a 5-point Likert scale (e.g., never to always).

Calculating scores of Demandingness and Responsiveness

Parent's way to encourage their child to eat is referred to as '**Demandingness',** similarly the way how parents respond to their child's eating cues and needs is referred to as **'Responsiveness'.** The items focusing on the **child's needs and preferences** during feeding are referred to as **Child-centred items**, similarly, the items focusing on the **parent's control and expectations** during feeding are referred to as **Parent-centred items.**

Demandingness was calculated with the average score across all items

Responsiveness is a ratio of average of child-centered items scores over the total scores

The median of both demandingness and responsiveness was calculated. Based on this median of demandingness and responsiveness, it was divided into low and high categories of demandingness and responsiveness of both mother and father (Table 3.8).

TABLE 3. 8: MEDIAN VALUE OF DE

MANDINGNESS AND RESPONSIVENESS OF MOTHER AND FATHER

	Mother	**Father**
Median value		
Demandingness	2.38	2.17
Responsiveness	1.26	1.29

Based on the low and high categories of demandingness and responsiveness of mother and father, feeding styles based on their scores was identified such as authoritative (high demandingness, high responsiveness), authoritarian (high demandingness, low responsiveness), indulgent (low demandingness, high responsiveness), and uninvolved (low demandingness, low responsiveness).

DATA MANAGEMENT AND STATISTICAL ANALYSIS

The collected data was entered into the Microsoft Excel. The data was cleaned and coded, after that it was subjected to appropriate statistical analysis. Frequency, mean, standard deviation, percentages, were calculated using SPPS version 22. Statistical significance tests were applied to assess differences in means and proportions. Anthropometric data was analysed using WHO Anthro software (V.3.2.2). The results are presented in tabular form for clear visualization.

RESULTS AND DISCUSSION

This chapter will present the primary findings of the research, directly addressing the study's core objectives. The primary aim of the study was to analyse the feeding styles followed by parents of children aged 6-24 months within the tribal Pardi Taluka of the Valsad district, Gujarat. Also, the study and its results are focused on four key areas:

- Parental Feeding Styles
- Parental Feeding Practices
- Dietary Quality of Complementary Foods
- Nutritional Status of Children Aged 6-24 Months

Table 4.1 shows the socio-demographic information across the genders in the study. A total of 269 children were enrolled in the study, out of which 129 were female and 140 were male which shows that the ratio of males is slightly higher than females. However, the difference was statistically not significant. The socio-demographic profile revealed that the majority (99.3%) of children were Hindu This chapter will present the primary findings of the research, directly addressing the study's core objectives. The main aim of the study was to analyse the feeding styles followed by parents of children aged 6-24 months within the tribal Pardi Taluka of the Valsad district, Gujarat. Also, the study and its results are focused on four key areas:

• Parental Feeding Styles
• Parental Feeding Practices
• Dietary Quality of Complementary Foods
• Nutritional Status of Children Aged 6-24 Months

Table 4.1 shows the socio-demographic information across the genders in the study. A total of 269 children were enrolled in the study, out of which 129 were female and 140 were male shows that the ratio of males is slightly higher than females. However, the difference was statistically not significant. The socio-demographic profile revealed that the majority (99.3%) of children were Hindu, and only (0.7%) of children were Muslim. With regards to caste-wise distributions, the majority of the children belong to Schedule Tribes (46.5%), followed by Other backward classes (42.8), Scheduled Caste (5.9%), and General category accounted for (4.8%). The majority of the family lived in a joint family with a ratio of (84.0%) followed by nuclear family (14.5%) and extended family (1.5%). The data shows that the most common family size in the study is between five and eight members,

accounting for 68% of children. Families with four or fewer members account for 17.5% of the total. The least family size is nine or more members, making up 14.5% of the overall study. All the respondents had toilet facilities in their households (99.3%). The age distribution of mothers' and fathers' data revealed that among mothers, the majority were in the age range of 20 to 30 years (70%). In comparison, fathers were primarily concentrated in the 30 to 40 years (61%) age group followed by 20 to 30 years (30%). The data shows that mothers tend to be younger than fathers on average, with a larger percentage of mothers in the 20-30 age group compared to fathers. Additionally, the chi-square values indicate that there are no significant differences between the age distributions of mothers and fathers across the genders. The distribution of children's ages, presented in Table 4.29, reveals that the 12-to-24-month age group comprised 78.1% of the sample, while the 6-to-12-month age group accounted for 21.9%. The parity distribution in the study population revealed a predominance of first and second-born children. Specifically, 55.0% of the children were first-born, while 41.6% were second-born. In contrast, third-born children constituted only 3.3%. The findings indicate a trend towards smaller families. Most families have one or two children and fewer families have three or more children.

Table 4. 1: SOCIO DEMOGRAPHIC INFORMATION BY GENDER

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Religion							
Hindu	127	98.4%	140	100.0%	267	99.3%	2.187 (0.139)
Muslim	2	1.6%	0	0.0%	2	0.7%	
Caste							
General	7	5.4%	6	4.3%	13	4.8%	4.688 (0.196)
OBC	47	36.4%	68	48.6%	115	42.8%	
SC	7	5.4%	9	6.4%	16	5.9%	
ST	68	52.7%	57	40.7%	125	46.5%	
Type of Family							
Extended	1	0.8%	3	2.1%	4	1.5%	2.062 (0.357)
Joint	106	82.2%	120	85.7%	226	84.0%	
Nuclear	22	17.1%	17	12.1%	39	14.5%	
Total Number of family members							
≤ 4	24	18.6%	23	16.4%	47	17.5%	

5-8	85	65.9%	98	70.0%	183	68.0%	0.521 (0.770)
≥ 9	20	15.5%	19	13.6%	39	14.5%	
Toilet facility available in the household							
No	2	1.6%	0	0.0%	2	0.7%	2.187 (0.139)
Yes	127	98.4%	140	100.0%	267	99.3%	
Age of Mother							
<20	2	1.6%	3	2.1%	5	1.9%	1.776 (0.620)
20-30	86	66.7%	101	72.1%	187	69.5%	
30-40	40	31.0%	34	24.3%	74	27.5%	
40-50	1	0.8%	2	1.4%	3	1.1%	
Age of Father							
20-30	37	28.7%	43	30.7%	80	29.7%	0.138 (0.933)
30-40	80	62.0%	84	60.0%	164	61.0%	
40-50	12	9.3%	13	9.3%	25	9.3%	
Age of the Children							
6 - 12 months	32	24.8%	27	19.3%	59	21.9%	1.195 (0.274)
12-24 months	97	75.2%	113	80.7%	210	78.1%	
Birth Order of the Children							
1	68	52.7%	80	57.1%	148	55.0%	1.669 (0.434)
2	58	45.0%	54	38.6%	112	41.6%	
≥3	3	2.3%	6	4.3%	9	3.3%	

The educational backgrounds of the parents are presented in Table 4.2. The education of parents plays a vital role in a child's feeding practices as well as in the overall upbringing of children's lives. The parental literacy rate was high, with only 1.5% (4 out of 269) of families reporting both parents as illiterate. When considering the qualifications of a mother, the highest qualification was till the high school (30.1%). The second highest qualification of the mother was till graduation (19.3%). The percentage of graduates among both mother and father was almost similar (19.3%) and (19.7%). Primary schooling of mother was (14.9%) followed by middle schooling (18.6%). The mothers had lower professional and diploma degree rates at 14.1% and 2.2%, respectively. However, a higher percentage of mothers held advanced degrees compared to fathers (6.3%). With respect to the education of fathers, the majority of them were high school passouts (30.9%). The status of primary schooling of the father was higher than that of the mother (17.8%).

Table 4. 2: EDUCATION OF PARENTS

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Education Qualification of Mother							
Illiterate	1	0.8%	1	0.7%	2	0.7%	5.234 (0.514)
Primary	19	14.7%	21	15.0%	40	14.9%	
Middle School	20	15.5%	30	21.4%	50	18.6%	
High School	39	30.2%	42	30.0%	81	30.1%	
Intermediate or Diploma	1	0.8%	5	3.6%	6	2.2%	
Graduate	29	22.5%	23	16.4%	52	19.3%	
Profession or honours	20	15.5%	18	12.9%	38	14.1%	
Education Qualification of Father							
Illiterate	1	0.8%	1	0.7%	2	0.7%	2.075 (0.913)
Primary	24	18.6%	24	17.1%	48	17.8%	
Middle School	18	14.0%	17	12.1%	35	13.0%	
High School	36	27.9%	47	33.6%	83	30.9%	
Intermediate or Diploma	13	10.1%	18	12.9%	31	11.5%	
Graduate	28	21.7%	25	17.9%	53	19.7%	
Profession or honours	9	7.0%	8	5.7%	17	6.3%	

The occupations of mothers and fathers are highlighted in Table 4.3. The finding shows that the majority of the mothers were unemployed (87.7%), while only 0.4% of fathers were unemployed. Most of the fathers were plant and machine operators and assemblers (41.3%), 24.5% were employed as skilled workers and shop and market sales workers followed by elementary occupation (10.4%), craft and related trade workers (8.9%), technicians and associate professionals (5.9%), 4.5% of them were working as skilled agricultural and fishery workers and fathers with the least ratio, working as clerks and legislators, senior

officials and managers (1.1%) and (3.0%). Thus, paternal occupations were more diverse, with a significant concentration in manual labour and skilled trades.

Table 4. 3: OCCUPATION OF PARENTS

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Occupation of Mother							
Unemployed	109	84.5%	127	90.7%	236	87.7%	9.024 (0.340)
Plant and Machine Operators and Assemblers	0	0.0%	1	0.7%	1	0.4%	
Elementary Occupation	2	1.6%	2	1.4%	4	1.5%	
Skilled Agricultural & Fishery Workers	0	0.0%	1	0.7%	1	0.4%	
Skilled workers and shop & market sales workers	5	3.9%	2	1.4%	7	2.6%	
Clerks	3	2.3%	0	0.0%	3	1.1%	
Technicians & Associate professional	4	3.1%	4	2.9%	8	3.0%	
Professionals	4	3.1%	1	0.7%	5	1.9%	
Legislators, senior officials and managers	2	1.6%	2	1.4%	4	1.5%	
Occupation of Father							
Unemployed	1	0.8%	0	0.0%	1	0.4%	9.829 (0.277)
Plant and Machine Operators and Assemblers	58	45.0%	53	37.9%	111	41.3%	
Elementary Occupation	13	10.1%	15	10.7%	28	10.4%	
Skilled Agricultural & Fishery Workers	7	5.4%	5	3.6%	12	4.5%	
Craft and Related Trade Workers	11	8.5%	13	9.3%	24	8.9%	

Skilled workers and shop & market sales workers	23	17.8%	43	30.7%	66	24.5%	
Clerks	2	1.6%	1	0.7%	3	1.1%	
Technicians & Associate professional	8	6.2%	8	5.7%	16	5.9%	
Legislators, senior officials and managers	6	4.7%	2	1.4%	8	3.0%	

Table 4.4 illustrates the Kuppuswamy classification of monthly income and its socio-economic classification among households as categorized by gender. In terms of the monthly income of the households, the majority of participants, both female (50.4%) and male (52.9%), fall within the monthly income range of 10,703-31,977, making up 51.7% of the total sample. Smaller percentages were found in income ranges from <10,702 (13.0%), 31,978-53,360 (11.9%), and 53,361-80,109 (5.6%). Higher-income categories, such as 80,110-1,06,849 and above, are less common. The chi-square result (2.205, p=0.900) indicates no significant difference in income distribution between females and males. The data on other sources of income, states that none of the households had other sources of income with a larger proportion of 80%, followed by only 16% of the families having agriculture as another source of income.

As per the Kuppuswamy classification, the majority of the households of male (45.7) and female (48.1) children fell under the upper-lower category of income. About one-third of the families of male (37.1%) and female (35.7%) children belonged to a lower middle-income group of income. All the income categories across genders showed almost similar distribution as reported. This shows that there is no difference in income categories among both genders.

Table 4. 4: INCOME CLASSIFICATION OF HOUSEHOLD BY GENDER CLASSIFICATION

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Monthly Income range as per Kuppuswamy 2024							
≤ 10,702	18	14.0%	17	12.1%	35	13.0%	
10,703-31,977	65	50.4%	74	52.9%	139	51.7%	

31,978-53,360	17	13.2%	15	10.7%	32	11.9%	2.205 (0.900)
53,361-80,109	8	6.2%	7	5.0%	15	5.6%	
80,110-1,06,849	16	12.4%	17	12.1%	33	12.3%	
1,06,850-2,13,813	4	3.1%	7	5.0%	11	4.1%	
≥2,13,814	1	0.8%	3	2.1%	4	1.5%	
Other sources of income							
Agriculture	18	14.0%	25	17.9%	43	16.0%	1.008 (0.799)
Poultry	3	2.3%	2	1.4%	5	1.9%	
House/Shop rent	3	2.3%	3	2.1%	6	2.2%	
None	105	81.4%	110	78.6%	215	79.9%	
Kuppuswamy Category							
Lower (V)	2	1.6%	0	0.0%	2	0.7%	4.176 (0.383)
Upper Lower (IV)	62	48.1%	64	45.7%	126	46.8%	
Lower Middle (III)	46	35.7%	52	37.1%	98	36.4%	
Upper Middle (II)	19	14.7%	22	15.7%	41	15.2%	
Upper (I)	0	0.0%	2	1.4%	2	0.7%	
Kuppuswami Score	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	
	11	5	12	4	12	4	

WASH and Hygiene practices of households are directly associated with the health and well-being of the children. Table 4.5 depicts the status of drinking water facilities and the storing practices of the households among genders. Looking towards the main source of water used for households for drinking, cooking, and handwashing, the majority (80.3%) of them used water from tubewells and borewells. And about half of the households (56.9%) used water from bottled water. Almost all the families (90.7%) were using water and soap to treat the collected water to keep it clean. The water was stored in a clean and covered container with a ratio of 94.8%. Additionally, the containers used for storing drinking water, with half (54.3%) of all the households stored in a plastic container, followed by 26.4% using RO tanks, 14.9% using metal pots and 15.2% of them using earthen pots to store drinking water. To make the water safe for drinking, large numbers of households used filtered water (76.5%) and less than half of them treated water by straining through a cloth (33.1%).

Table 4. 5: DRINKING WATER FACILITIES OF HOUSEHOLDS

Category	Female (N=129)		Male (N=140)		Total (N=269)	
	N	%	N	%	N	%
Main source of water used by households for drinking, cooking and hand washing*						
Piped water into the dwelling	0	0.0%	2	1.4%	2	0.7%
Public tap standpipe	22	17.1%	27	19.3%	49	18.2%
Tubewell borehole	105	81.4%	111	79.3%	216	80.3%
Bottled water	78	60.5%	75	53.6%	153	56.9%
Container used to store drinking water*						
Earthen pot	17	13.2%	24	17.1%	41	15.2%
Metal pot	21	16.3%	19	13.6%	40	14.9%
RO tank	31	24.0%	40	28.6%	71	26.4%
Plastic container	73	56.6%	73	52.1%	146	54.3%
How you store water						
Clean and covered container	122	94.6%	133	95.0%	255	94.8%
Covered container or jar	7	5.4%	7	5.0%	14	5.2%
Treat the vessel you use to collect water						
No treatment	5	3.9%	5	3.6%	10	3.7%
Use of water	8	6.2%	7	5.0%	15	5.6%
Use of water and soap	116	89.9%	128	91.4%	244	90.7%
What is used for taking out the water						
Glass	50	38.8%	54	38.6%	104	38.7%
Tap	87	67.4%	91	65.0%	178	66.2%

Doyo	0	0.0%	2	1.4%	2	0.7%
Do you treat your water in any way to make it safe to drink						
Yes	120	93.0%	137	97.9%	257	95.5%
No	9	7.0%	3	2.1%	12	4.5%
If yes then, the water you are going to use is not safe or does not come from a safe source, what should you do*						
Boil it Add bleach/chlorine	6	4.7%	3	2.1%	9	3.3%
Strain it through a cloth	43	33.3%	46	32.9%	89	33.1%
Use a water filter	99	76.7%	107	76.4%	206	76.6%

***Multiple responses**

KNOWLEDGE OF PARENTS ON COMPLEMENTARY FEEDING PRACTICES

Table 4.6 examines parental knowledge and practices concerning infants' complementary feeding, comparing responses between mothers and fathers. A large majority of both mothers (81.4%) and fathers (82.5%) recognized that complementary feeding should begin after 6 months of age, which aligns with WHO recommendations. A very small percentage of both groups believed complementary foods should be introduced before 6 months or should be introduced after 9 months of age. A majority of both mothers and fathers (around 70%) correctly identified liquid form as a good consistency for 7-month-old infants. Approximately 28% of both groups identified as semi-solid. Very few parents believed solid food was appropriate at this age. **The data indicates a general understanding of recommended feeding practices, with the majority of both groups correctly identifying that complementary feeding should begin after 6 months of age and that liquid or semi-solid foods are appropriate for 7-month-old infants**. However, there is variability in beliefs regarding the age at which self-feeding should start, a significant proportion of both mothers (55.4%) and fathers (53.9%) believed children should start self-feeding after 1 year of age. A considerable portion of fathers (23.4%) compared to mothers (13.8%) believed that children should start self-feeding after 2 years of age. Smaller percentages suggested self-feeding should begin between 7-8, 8-10 or 11-12 months. Core meals like breakfast, lunch, and dinner were consistently recognized by a high percentage of both mothers and fathers as essential as well as appropriate feeding times. Snacks were

more frequently identified by mothers (84.8%) than fathers (49.1%). Brunch was considered by a larger percentage of mothers (44.2%) than fathers (26.8%). The frequency of the meals that the parents think they have to give is very similar to the frequency of the meals that they give. The importance of continuing breastfeeding alongside complementary feeding is well understood as the majority of both mothers (91.1%) and fathers (82.2%) agreed that breast milk should continue alongside complementary feeding. Breast milk, cereals, roots & tubers, and legumes & nuts were recognized by a high percentage of both mothers and fathers as suitable food items. Vitamin A-rich fruits & vegetables were also highly recognized. Dairy products, eggs, other fruits & vegetables, and flesh foods were mentioned by varying percentages, with mothers generally reporting higher percentages than fathers. The data suggests that mothers are generally more aware of the diverse food groups that should be provided to their children than fathers.

TABLE 4. 6: KNOWLEDGE OF PARENTS ON PRACTICES OF COMPLEMENTARY FEEDING OF CHILDREN

Category	Mothers (N=269)		Fathers (N=269)		Chi-square (p-value)
	N	%	N	%	
From what age a child should be given complementary food					
Less than 6 months	4	1.5%	5	1.9%	9.108 (0.027*)
At 6 months	35	13.0%	19	7.1%	
After completion of 6 months	219	81.4%	222	82.5%	
After 9 months	11	4.1%	23	8.6%	
What consistency of food should be given to the 7month child					
Liquid Form	190	70.6%	190	70.6%	0.2065 (0.901)
Semi-solid	76	28.3%	77	28.6%	
Solid	3	1.1%	2	0.7%	
From what age a child should be eating food by him or herself					
7-8 months	4	1.5%	9	3.3%	21.09 (0.000***)
8-10 months	43	16.0%	16	5.9%	
11-12 months	36	13.4%	36	13.4%	
After 1 year	149	55.4%	145	53.9%	
After 2 years	37	13.8%	63	23.4%	

How many times a child is fed complementary feed in a day*					
Breakfast	253	94.1%	241	89.6%	23.68 (0.000***)
Brunch	119	44.2%	72	26.8%	
Lunch	265	98.5%	252	93.7%	
Snack	228	84.8%	132	49.1%	
Dinner	244	90.7%	241	89.6%	
How many times do we have to give complementary feed in a day*					
Breakfast	256	95.2%	244	90.7%	25.09 (0.000***)
Brunch	123	45.7%	73	27.1%	
Lunch	265	98.5%	255	94.8%	
Snack	232	86.2%	133	49.4%	
Dinner	250	92.9%	243	90.3%	
Breast milk should be continued along with complementary food					
Yes	245	91.1%	221	82.2%	9.236 (0.0023**)
No	24	8.9%	48	17.8%	
Which food items should be fed to the child*					
Breastmilk	266	98.9%	267	99.3%	15.59 (0.029*)
Cereal, roots & tuber	267	99.3%	215	79.9%	
Legumes & nuts	266	98.9%	211	78.4%	
Vitamin- A rich fruits & vegetables	257	95.5%	212	78.8%	
Dairy products	189	70.3%	128	47.6%	
Egg	138	51.3%	95	35.3%	
Other fruits & vegetables	226	84.0%	179	66.5%	
Flesh foods	108	40.1%	60	22.3%	

Multiple responses (p < 0.05*, p < 0.01**, p < 0.001)**

AGE-APPROPRIATE FEEDING PRACTICES

Knowledge, attitude and practice of parents regarding child feeding practices shape the overall health and nutrition status of children. Table 4.7 illustrates insights into parental perceptions of age-appropriate feeding practices. A higher percentage of mothers (37.9%) than fathers (25.3%) recognized the appropriateness of using a cup instead of a bottle for a 3-month-old infant who has lost their mother. This suggests mothers may be more aware of or inclined towards alternative feeding methods in specific circumstances. A significantly higher percentage of mothers (71.7%) than fathers (48.0%) acknowledged the importance of allowing a 10-month-old child to self-feed with a bowl and spoon. This indicates that mothers are more prone to promote self-feeding and independence at this age. The majority of mothers (95.9%) and a substantial proportion of fathers (72.5%) recognized the importance of verbal interaction during meals with a 10-month-old. This shows that most parents understand the importance of social interaction during feeding, but mothers recognize this at a higher rate. Relatively low percentages of both mothers (19.3%) and fathers (23.4%) believed in preventing a 12-month-old from touching their food and plate. This implies that most parents understand the importance of allowing the child to explore the food. An exceptionally high percentage of mothers (99.6%) and a high percentage of fathers (82.2%) emphasized the importance of showing affection during feeding at 15 months. This highlights the strong recognition of the emotional aspect of feeding. A lower percentage of both mothers (20.4%) and fathers (21.9%) thought it was appropriate to still be spoon-feeding and holding the cup for a 24-month-old child, and not allowing the child to touch. This shows that the vast majority of parents understand that at this age, children should be feeding themselves. Thus, the data reveals a consistent trend of mothers generally demonstrating a higher awareness and adherence to age-appropriate feeding behaviors compared to fathers. This difference may stem from varying levels of involvement in childcare, differences in access to childcare information, or cultural influences. The strong emphasis on emotional connection during feeding, particularly at 15 months, underscores the recognition of the psychosocial aspects of child development. The data shows a high understanding of the importance of self-feeding at 10 months and 24 months. The data shows a high understanding of the importance of social interaction during feeding.

Table 4. 7: KNOWLEDGE OF PARENTS ON AGE-APPROPRIATE FEEDING BEHAVIOURS

Age-appropriate feeding behaviours	Mothers (N=269)		Fathers (N=269)		Chi-square (p-value)
	N	%	N	%	
Feeding milk to a 3-month-old who has lost his mother with cup rather than a bottle	102	37.9%	68	25.3%	126571.75 (0.038*)
Giving a 10-month child own bowl and spoon to eat alone	193	71.7%	129	48.0%	
Talking to a 10-month-old child during a meal	258	95.9%	195	72.5%	
Keeping a 12-month-old child from touching her food and plate	52	19.3%	63	23.4%	
Showing affection to a 15-month-old child while feeding, showing that he/she is loved	268	99.6%	221	82.2%	
Spoon feeding and holding a cup for a 24-month-old, not allowing child to touch Spoon	55	20.4%	59	21.9%	

(p < 0.05*)

Table 4.8 represents a comparative analysis of maternal and paternal involvement in complementary feeding practices for 269 mother-father pairs. Fathers are significantly more involved in purchasing food items (82.9%) compared to mothers (52.4%). Mothers are more involved in selecting food items (71.4%) and meal preparation (98.9%) than fathers (43.9% and 5.2%, respectively). Mothers also report a higher rate of actively feeding the child (99.6%) compared to fathers (58.0%). A majority of mothers report feeding the child (98.9%), while a smaller but still substantial percentage of fathers do so. Methods of feeding vary, with telling stories being common for both parents. However, fathers report significantly more usage of mobile phones during feeding (34.6%) than mothers (21.2%). The use of separate bowls and plates for feeding the children is high for both mothers and fathers, with mothers slightly higher. Daily having a meal with the child is similar for both mothers and fathers (around 33%). Mothers report more frequent meal participation on most days of the week, while fathers report more infrequent participation (a few times a

week, rarely, and never). The majority of the mothers reported feeding the child by themselves (70.6%), while the majority of fathers reported that someone else fed the child (66.2%). Children eating by themselves was reported more by fathers (23.8%) than mothers (11.9%). Fathers report washing the child's hands before and after feeding the child more often than mothers. Nappy changing is the duty mainly done by the mothers, but fathers also participate. Mothers reported taking their child to the hospital more than fathers. The majority of both parents reported that hospital visits were for both immunizations and illnesses. Mothers perceive themselves as more quite involved and very much involved in feeding practices compared to fathers. Fathers perceive themselves as more moderately involved than mothers, and reported, not being involved at all. The data highlights a distinct division of labor in complementary feeding. Mothers are predominantly responsible for meal preparation and direct child feeding, emphasizing their key role in immediate nutritional care. Fathers, conversely, demonstrate a higher involvement in food procurement. Feeding practices involve both parents employing strategies like storytelling and technology, though with varying frequencies. Hygiene practices, particularly handwashing, show differences between parents. Maternal self-reported involvement in feeding practices is notably higher, reflecting their primary role. The data also showed large differences in nappy-changing duties between mothers and fathers.

TABLE 4.8: PARENTS PRACTICES IN FEEDING COMPLEMENTARY FOODS TO CHILDREN

Category	Mothers (N=269)		Fathers (N=269)		Chi-square (p-value)
	N	%	N	%	
How do you participate in complementary feeding*					
Purchasing	141	52.4%	223	82.9%	214.9 (0.000***)
Selecting Food item	192	71.4%	118	43.9%	
In feeding	268	99.6%	156	58.0%	
Meal preparation	266	98.9%	14	5.2%	
Do you feed the child					
Yes	266	98.9%	114	42.4%	2017.2 (0.000***)
Sometimes	3	1.1%	88	32.7%	
No	0	0.0%	67	24.9%	
How do you feed the child					
Watching TV	38	14.1%	25	9.3%	
Telling stories	123	45.7%	100	37.2%	
Giving Toys	91	33.8%	90	33.5%	

Giving books	2	0.7%	0	0.0%	29.27 (0.000***)
Giving Mobile	57	21.2%	40	14.9%	
None of them	42	15.6%	93	34.6%	
Does the child use a separate bowl plate cup for feeding					
Yes	214	79.6%	198	73.6%	29.27 (0.000***)
No	59	20.4%	71	26.4%	
How often do you have meals with your child					
Daily	89	33.1%	91	33.8%	23.67 (0.000***)
Most Days of the week	85	31.6%	46	17.1%	
A few times a week	24	8.9%	51	19.0%	
Rarely	39	14.5%	36	13.4%	
Never	32	11.9%	45	16.7%	
How did the child receive the food yesterday					
The child was fed by me	190	70.6%	27	10.0%	209.4 (0.000***)
The child ate by himself/herself	32	11.9%	64	23.8%	
The child was fed by someone else	47	17.5%	178	66.2%	
Do you wash your child's hands before feeding					
Yes	100	37.2%	131	48.7%	122.2 (0.000***)
Sometimes	34	12.6%	113	42.0%	
No	135	50.2%	25	9.3%	
Do you wash your child's hands after feeding					
Yes	118	43.9%	130	48.3%	1.98 (0.371)
Sometimes	28	10.4%	20	7.4%	
No	123	45.7%	119	44.2%	
Do you change your child's nappy					
Yes	267	99.3%	135	50.2%	171.6 (0.000***)
Sometimes	2	0.7%	72	26.8%	
No	0	0.0%	62	23.0%	
Do you make your child visit the hospital					
Yes	265	98.5%	218	81.0%	46.94 (0.000***)
Sometimes	4	1.5%	15	5.6%	
No	0	0.0%	36	13.4%	
If yes, when do you make your child visit the hospital					
Suffering from illness	61	22.7%	61	22.7%	4.954 (0.083)
For immunization	0	0.0%	5	1.9%	
Both for Immunization and suffering from illness	208	77.3%	208	77.3%	
How would you rate your involvement in your child's feeding practices					

Moderately involved	37	13.8%	92	34.2%	234.2 (0.000***)
Not involved at all	0	0.0%	58	21.6%	
Quite involved	134	49.8%	37	13.8%	
Slightly involved	20	7.4%	77	28.6%	
Very involved	78	29.0%	5	1.9%	

(p < 0.001*)**

A comparison of 269 mother-father pairs' maternal and paternal communication, support, and education regarding child nutrition and feeding practices is shown in Table 4.9. The majority of both mothers (65.4%) and fathers (61.7%) report discussing their child's nutrition and feeding practices daily. However, fathers report sometimes discussing nutrition more frequently than mothers. A higher percentage of both mothers (95.5%) and fathers (88.5%) report providing regular emotional and practical support to their partners in matters related to child feeding and nutrition. A relatively higher percentage of mothers (25.3%) have attended parenting or nutrition education programs that have influenced their knowledge about child-feeding practices compared to fathers (7.4%). This shows that mothers are more likely to seek out and receive formal education on child nutrition. The data reveals a high level of daily communication between mothers and fathers regarding child nutrition. Both parents also report providing substantial emotional and practical support to each other. However, mothers are significantly more likely to participate in formal nutrition education programs. This disparity suggests a potential difference in access to or engagement with educational resources between mothers and fathers.

TABLE 4.9: PARENTS COMMUNICATION AND SUPPORT FOR CHILDREN

Category	**Mothers (N=269)**		**Fathers (N=269)**		**Chi-square (p-value)**
	N	**%**	**N**	**%**	
How often do you discuss your child's nutrition and feeding practices with your Partner					
Daily	176	65.4%	166	61.7%	17.66 (0.003**)
Monthly	1	0.4%	3	1.1%	
Never	15	5.6%	13	4.8%	
Rarely	27	10.0%	11	4.1%	
Sometimes	36	13.4%	66	24.5%	

Weekly	14	5.2%	10	3.7%	
Do you provide emotional and practical support to your partner in matters related to child feeding and nutrition					
No, not at all	3	1.1%	8	3.0%	10.17 (0.017*)
Occasionally	0	0.0%	3	1.1%	
Sometimes	9	3.3%	20	7.4%	
Yes, regularly	257	95.5%	238	88.5%	
Have you attended any parenting or nutrition education programs that have influenced your knowledge about cold feeding practices					
Yes	68	25.3%	20	7.4%	31.3 (0.000***)
No	201	74.7%	249	92.6%	

(p < 0.05*, p < 0.01, p < 0.001***)**

Table 4.10 presents a comparative analysis of cultural or societal norms affecting maternal and paternal involvement in child nutrition. The majority of both mothers (98.5%) and fathers (100%) report not facing any cultural or societal norms that affect their ability to be involved in their child's nutrition. A very small number of mothers (1.5%) reported facing cultural or societal norms. Among the few mothers who reported facing such norms, 50% cited cultural myths as a reason, and 50% cited issues with family members. The data indicates a negligible impact of cultural or societal norms on parental involvement in child nutrition within the studied population. Statistically, the overwhelming majority of both mothers and fathers reported no such influence. Of the small subset of mothers who did report encountering such norms, the contributing factors were cultural myths and household issues. The lack of reported cultural or societal constraints among fathers suggests a potential disparity in the perceived or experienced influence of these factors between mothers and fathers, although the small sample size of mothers reporting this issue limits the generalizability of these findings.

TABLE 4.10: PARENTS CHALLENGES AND BARRIERS REGARDING CHILD'S NUTRITION

Category	Mothers (N=269)		Fathers (N=269)		Chi-square (p-value)	
	N	%	N	%	N	%
Do you face any cultural or societal norms that affect your ability to be involved in your child's nutrition						
Yes	4	1.5%	0	0.0%	-	
No	265	98.5%	269	100.0%		
Reason for facing any cultural or societal norms that affect your ability to be involved in your child's nutrition						
Cultural Myths	2	50.0%	0	0.0%	-	
Issues with family members	2	50.0%	0	0.0%		

Table 4.11 portrays a comparative analysis of who spends money and purchases food for children among mothers, fathers, grandparents, and other family members, showing the frequency and percentage of affirmative ("Yes") and negative ("No") responses. Fathers strongly reported spending money on children's food (98.1%). A greater percentage of mothers (67.7%), grandparents (71.4%) and other family members (83.3%) reported not spending money on food for children. Fathers also report the highest frequency of purchasing food for children (89.2%), though mothers also report a high percentage (78.4%). Grandparents (39.8%) and other family members (15.2%) reported purchasing food less frequently. The data highlights a clear disparity in financial and procurement responsibilities related to children's food. Fathers are the primary financial contributors and food purchasers, demonstrating a dominant role in these aspects of childcare. Mothers are heavily involved in the purchasing of food, but not the spending of money. Grandparents and other family members play a significantly lesser role in both spending and purchasing, indicating a limited involvement in these specific domains. This suggests a hierarchical structure where financial and procurement duties are primarily concentrated within the parental unit, particularly the father, with extended family members contributing to a lesser extent.

Table 4.11: SUPPORT DOMAINS OF CHILDREN ON FINANCIAL CONTRIBUTION

Category	Mother		Father		Grandparents		Other family member		Chi-square (p-value)
	N	%	N	%	N	%	N	%	
Spending money for food for children									
Yes	87	32.3%	264	98.1%	77	28.6%	45	16.7%	441.9 (0.000***)
No	182	67.7%	5	1.9%	192	71.4%	224	83.3%	
Purchasing food for children									
Yes	211	78.4%	240	89.2%	107	39.8%	41	15.2%	384.9 (0.000***)
No	58	21.6%	29	10.8%	162	60.2%	228	84.8%	

(p < 0.001*)**

Table 4.12 presents a comparative analysis of who prepares food for children among mothers, fathers, grandparents, and other family members. Mothers overwhelmingly report preparing food for children (97.4%). Grandparents (39.8%) and other family members (13.0%) report preparing food to a lesser extent than mothers do. Fathers report very low participation in food preparation (0.7%). The data demonstrates a clear and significant division of labor regarding food preparation for children. Mothers are the primary food preparers, indicating a dominant role in this aspect of childcare. Fathers exhibit minimal involvement in food preparation, suggesting a strong maternal focus in this domain. Grandparents and other family members show varying degrees of involvement, but their participation is substantially lower than that of mothers. This distribution of food preparation responsibilities highlights a traditional caregiving pattern where mothers are predominantly responsible for the direct nutritional provision for children.

Table 4.12: SUPPORT DOMAINS OF CHILDREN FOR PREPARING FOOD

Category	Mother		Father		Grandparents		Other family member		Chi-square (p-value)
	N	%	N	%	N	%	N	%	
Preparing food for the child									
Yes	262	97.4%	2	0.7%	107	39.8%	35	13.0%	634.7 (0.000***)
No	7	2.6%	267	99.3%	162	60.2%	234	87.0%	

(p < 0.001*)**

Table 4.13 presents mothers, fathers, grandparents, and other family members' involvement in child-feeding practices focusing on giving advice, teaching self-feeding, and handwashing. Fathers are most likely to give advice or remind mothers about child feeding times (32.3%). However, a greater percentage of all groups reported not giving advice. Mothers are most likely to teach children to eat by themselves (78.8%). Fathers (11.2%), grandparents (23.0%), and other family members (11.5%) have significantly lower percentages. Mothers are most likely to wash their child's hands before eating (45.7%). The data reveals distinct patterns of involvement in child-feeding practices across different family members. Fathers are more likely to provide advice or reminders related to feeding times, suggesting a role in overseeing or supporting the feeding schedule. Mothers predominantly take on the responsibility of teaching children self-feeding, indicating a primary role in fostering the child's independence in eating. Handwashing before meals a crucial hygiene practice was mostly performed by mothers. The data also showed a large percentage of family members reporting "none of this" for all categories, which indicates that in many cases, none of the family members listed were performing these actions.

Table 4.13: SUPPORT DOMAINS FOR CHILD FEEDING

Category	Mother		Father		Grandparents		Other family member		None of this		Chi-square (p-value)
	N	%	N	%	N	%	N	%	N	%	
Gives Advice/reminds the mother on child feeding time											
Yes	28	10.4%	87	32.3%	32	11.9%	64	23.8%	41	15.2%	59.9 (0.000***)
No	241	89.6%	182	67.7%	237	88.1%	205	76.2%	228	84.8%	

Teaches the child to eat by him/herself											
Yes	212	78.8%	30	11.2%	62	23.0%	31	11.5%	51	19.0%	426 (0.000***)
No	57	21.2%	239	88.8%	207	77.0%	238	88.5%	218	81.0%	
Washes the child's hands before the child eats											
Yes	123	45.7%	15	5.6%	24	8.9%	13	4.8%	133	49.4%	311.9 (0.000***)
No	146	54.3%	254	94.4%	245	91.1%	256	95.2%	136	50.6%	

(p < 0.001*)**

Table 4.14 represents the data on support domains for helping the mother with other household chores so that the mother can prepare the food for the children. Grandparents were the primary support providers, with a substantial ratio (75.5%) in assisting mothers with household chores. In contrast, fathers offer the least support, with only 19.3% helping. Other family members provide moderate assistance, at 28.6%. However, the results revealed a statistical significance.

Table 4. 14: SUPPORT DOMAINS FOR HELPING MOTHER IN OTHER HOUSEHOLD CHORES

Category	Father		Grandparents		Other family members		**Chi-square**
	N	**%**	**N**	**%**	**N**	**%**	
Helps in other chores so that the mother can prepare food or feed the child							
Yes	52	19.3%	203	75.5%	77	28.6%	201.1 (0.000***)
No	217	80.7%	66	24.5%	192	71.4%	

(p < 0.001*)**

BREASTFEEDING PRACTICES

Table 4.15 presents the breastfeeding practices followed by children aged 6-24 months, categorized by gender. The overall ratio of immediate breastfeeding initiation was 17.1% (Figure 4.1) A significantly higher percentage of children received breastfeeding after 2 days (38.7%), followed by children received breastfeeding less than 24 hours (33.8%) and receiving breastfeeding less than an hour with (10.4%). The ratios of early initiation practices were similar between male and female children. Specifically, 17.8% of female children and 16.4% of male children were breastfed immediately. There were no

statistically significant differences in early breastfeeding initiation practices between males and females. Therefore, gender does not significantly influence the early initiation of breastfeeding.

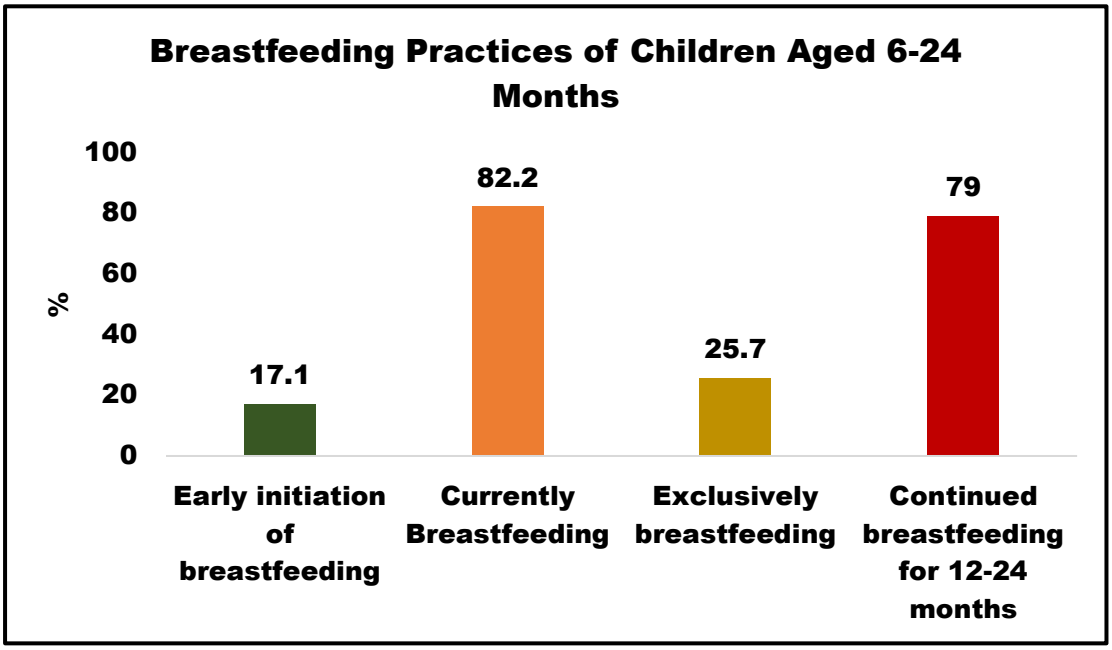
A high percentage of children were currently breastfed (82.2%). The ratios were similar between male and female children, with 81.4% of female children and 82.9% of male children currently being breastfed. There were no significant differences between the two gender groups. Therefore, gender does not significantly affect current breastfeeding status. The ratio of children who received bottle feeding was 30.1%. The ratios were similar between male and female children, with 31.8% of female children and 28.6% of male children receiving bottle feeding. A high percentage of children were exclusively breastfed for the first two days after birth (74.3%). The ratios were similar between male and female children, with 76.7% of female children and 72.1% of male children being exclusively breastfed for the first two days. There were no significant differences between the two gender groups. However, the ratio of children exclusively breastfed under six months was significantly lower (25.7%). The ratios were again similar between male and female children, with 27.1% of female children and 24.3% of male children being exclusively breastfed under six months. There were no statistically significant differences between the two gender groups. Among children aged 12-24 months, a high percentage of children received continued breastfeeding (79%). The ratios were similar between male and female children within this age range. Specifically, 78.3% of female children and 79.6% of male children continued breastfeeding. There were no significant differences between the two gender groups within those aged 12-24 months.

Table 4. 15: BREASTFEEDING PRACTICES FOLLOWED BY THE CHILDREN

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Early Initiation of Breastfeeding							
Immediately	23	17.8%	23	16.4%	46	17.1%	1.591 (0.661)
Less than one hour	15	11.6%	13	9.3%	28	10.4%	
Less than 24 hours	46	35.7%	45	32.1%	91	33.8%	
After 2 days	45	34.9%	59	42.1%	104	38.7%	
Currently breastfeeding							

No	24	18.6%	24	17.1%	48	17.8%	0.098 (0.754)
Yes	105	81.4%	116	82.9%	221	82.2%	
Bottle Feeding							
No	88	68.2%	100	71.4%	188	69.9%	0.329 (0.566)
Yes	41	31.8%	40	28.6%	81	30.1%	
Exclusively breastfed for the first two days after birth							
No	30	23.3%	39	27.9%	69	25.7%	0.745 (0.388)
Yes	99	76.7%	101	72.1%	200	74.3%	
Exclusive breastfeeding under six months							
No	94	72.9%	106	75.7%	200	74.3%	0.285 (0.593)
Yes	35	27.1%	34	24.3%	69	25.7%	
Continued Breastfeeding for 12-24 months	**Female (N=97)**		**Male (N=113)**		**Total (N=210)**		**Chi-square (p-value)**
	N	**%**	**N**	**%**	**N**	**%**	
No	21	21.6%	23	20.3%	44	20.9%	0.0528 (0.818)
Yes	76	78.3%	90	79.6%	166	79 %	

FIGURE 4. 1: BREASTFEEDING PRACTICES OF CHILDREN AGED 6-24 MONTHS



Data on the initiation of complementary foods as per the gender classification is given in Table 4.16 which represents that a majority of infants were initiated complementary feeding after 6 months (85.9%). Comparing the gender, the percentage of females (86.8%) is

slightly higher than the percentage of males (85.0%) in terms of initiating complementary feeding after 6 months. Conversely, the overall ratio of introducing complementary foods before 6 months and after 7 months is relatively low with 6.3% and 7.8% respectively.

The frequency of feeding complementary foods is as important as the initiation of complementary foods. Table 4.17 indicates the data on how many times complementary feed was given in a day. The findings state that the majority of the children were fed four times a day with a maximum ratio of 42.7% and a minimum of two times a day with a ratio of 6.7%. About a quarter of children were fed three times a day with a percentage of 26%. However, only 19.7% of children were fed five times a day.

Table 4. 16: INTRODUCTION OF COMPLEMENTARY FOOD ACCORDING TO GENDER

Introduction of Complementary food	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
After 6 months	112	86.8%	119	85.0%	231	85.9%	1.013 (0.603)
Before 6 months	9	7.0%	8	5.7%	17	6.3%	
After 7 months	8	6.2%	13	9.3%	21	7.8%	

Table 4. 17: FREQUENCY OF FEEDING COMPLEMENTARY FOOD

No. of times complementary foods fed	Female (N=129)		Male (N= 140)		Total (N= 269)		Chi-square (p-value)
	N	%	N	%	N	%	
1	0	0.0%	1	0.7%	1	0.4%	2.010 (0.734)
2	9	7.0%	9	6.4%	18	6.7%	
3	31	24.0%	39	27.9%	70	26.0%	
4	65	50.4%	62	44.3%	127	47.2%	
5	24	18.6%	29	20.7%	53	19.7%	

Table 4.18 highlights that the most common frequency of complementary feeding was 4 times per day, observed in 47.2% of the total children. A substantial proportion (26.0%) received complementary feeding 3 times per day, and 19.7% received it 5 times per day. A smaller percentage of children received complementary feed 2 times a day (6.7%). Very few children only received complementary feed once a day (0.4%). While there are slight variations in the percentages between males and females within each feeding frequency

category, however, the data was statistically not significant. This indicates that the distribution of complementary feeding frequency is relatively similar for both male and female children in this study.

Table 4. 18: QUANTITY OF COMPLEMENTARY FOODS FED TO THE CHILD AT ONE TIME ACCORDING TO GENDER

Quantity of Complementary food	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
1 tbsp	5	3.9%	3	2.1%	8	3.0%	5.226 (0.156)
1/4th cup	7	5.4%	11	7.9%	18	6.7%	
½ cup	76	58.9%	66	47.1%	142	52.8%	
1 cup	41	31.8%	60	42.9%	101	37.5%	

Along with the quantity and frequency of complementary foods, the quality of complementary foods is also an important factor in child-feeding practices. In Table 4.19, the data on the quality of complementary foods in terms of consistency are shown. This data illustrates that more than half number of the children were fed complementary foods with medium consistency (79.9%). There is almost no difference between genders, in terms of feeding medium-quality complementary foods with a ratio of males (80%) and females (79.8%). The thin and thick consistency of complementary foods showed the least ratio with a total of 7.8 % and 12.3 % respectively. This concluded that the quality of complementary feeding among both genders was practised better among caregivers of children aged 6-24 months.

Table 4. 19: CONSISTENCY OF COMPLEMENTARY FOOD ACCORDING TO GENDER

Consistency of Complementary food	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Thin	10	7.8%	11	7.9%	21	7.8%	0.005 (0.998)
Medium	103	79.8%	112	80.0%	215	79.9%	
Thick	16	12.4%	17	12.1%	33	12.3%	

Data shares insights on child care practices of children as per the gender in table 4.20. The maximum time taken for feeding the child is 15 minutes with 51.7%, followed by taking 30 minutes with 37.2%. Moreover, the ratio of time taken to feed the child for 60 minutes and 45 minutes was almost similar at 5.25 and 5.9% respectively.

Table 4. 20: CHILD CARE PRACTICES ACCORDING TO GENDER

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Time taken for feeding the child							
60 minutes	5	3.9%	9	6.4%	14	5.2%	2.209 (0.530)
15 minutes	66	51.2%	73	52.1%	139	51.7%	
30 minutes	48	37.2%	52	37.1%	100	37.2%	
45 minutes	10	7.8%	6	4.3%	16	5.9%	

Table 4.21 and Table 4.22 represent the data on handwashing practices and storage and handling of complementary foods for children by the caregiver classified by gender respectively. A large number of households (98.5%) were washing their hands under running water which is a good washing practice. A maximum number of the caregivers reported, washing hands before (95.9%) and after cooking (100%) complementary foods. Also, the majority number of caregivers washed their hands before and after feeding meals to the child with a percentage of 93.3% and 99.9% respectively. Furthermore, all the caregivers were washing hands after cleaning (99.6%) the child's faeces. Additionally, a large number of caregivers were not storing complementary foods (93.3%). Only 6.7 % of them were storing food for 2-3 hours. The majority (97.4%) of the caregivers were cutting vegetables after washing. Less than the half number of caregivers were adding extra fats, oils, sugar, and jaggery after preparing complementary foods.

Table 4. 21: HANDWASHING PRACTICES

Sanitation and Hygiene	Female (N=129)		Male (N=140)		Total (N=269)	
	N	%	N	%	N	%
How do you wash your hands						

Under running water appropriate practise	127	98.4%	138	98.6%	265	98.5%
Washes hands in a bowl of water	1	0.8%	0	0.0%	1	0.4%
Washes hands with soap or ashes	1	0.8%	2	1.4%	3	1.1%
Hand washing practices followed*						
Before cooking	126	97.7%	132	94.3%	258	95.9%
After cooking	129	100.0%	140	100.0%	269	100.0%
Before feeding the child	122	94.6%	129	92.1%	251	93.3%
After feeding the child	129	100.0%	139	99.3%	268	99.6%
After cleaning the child's faeces	129	100.0%	139	99.3%	268	99.6%

***Multiple responses**

Table 4. 22: STORAGE AND HANDLING OF COMPLEMENTARY FOODS FOR CHILDREN

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Sanitation and Hygiene							
Washing hands Before cooking							
Yes	126	97.7%	132	94.3%	258	95.9%	1.966 (0.161)
No	3	2.3%	8	5.7%	11	4.1%	
Washing hands After cooking							
Yes	129	100.0%	140	100.0%	269	100.0%	-
Washing hands Before feeding the child							
Yes	122	94.6%	129	92.1%	251	93.3%	0.635 (0.425)
No	7	5.4%	11	7.9%	18	6.7%	
Washing hands After feeding the child							

Yes	129	100.0%	139	99.3%	268	99.6%	0.925 (0.336)
No	0	0.0%	1	0.7%	1	0.4%	
Washing hands After cleaning the child's faeces							
Yes	129	100.0%	139	99.3%	268	99.6%	0.925 (0.336)
No	0	0.0%	1	0.7%	1	0.4%	
For how long do you store cooked complementary foods							
Not Storing	118	91.5%	133	95.0%	251	93.3%	1.338 (0.247)
For 2-3 hours	11	8.5%	7	5.0%	18	6.7%	
When do you cut your vegetables							
Before washing	4	3.1%	3	2.1%	7	2.6%	0.243 (0.622)
After washing	125	96.9%	137	97.9%	262	97.4%	
Do you add extra fats, oils, sugar and jaggery after preparing complementary foods							
Yes	58	45.0%	63	45.0%	121	45.0%	0.000 (0 .995)
No	71	55.0%	77	55.0%	148	55.0%	

DIETARY DIVERSITY

Table 4.23 represents the food groups consumed by children the previous day, categorized by gender. A significantly higher percentage of children consumed cereals (92.6%). However, the ratio of cereal consumption was significantly higher in female children (96.1%) compared to male children (89.3%). A high percentage of children consumed whole grains (85.5%). However, the ratio of whole grain consumption was significantly higher in female children (89.9%) compared to male children (81.4%). A very lower percentage of the children consumed millet (4.1% overall). Slightly over one-fourth of the children consumed roots and tubers (26.4%). A high percentage (82.5%) of children consumed pulses. A lower proportion of children (11.9%) consumed nuts and oilseeds, while only (9.7%) consumed dairy products, followed by eggs (9.3%). A significant percentage of children (90%) did not consume flesh foods, meat and poultry. Slightly over

one-tenth (12.6%) consumed dark green vegetables, and a small fraction, consumed vitamin A-rich fruits (4.5%) and vegetables (5.9%). Slightly under one-fifth (17.8%) consumed citrus fruits. Two-thirds of the children (68.8%) consumed other vegetables and slightly under half of the children (45.7%) consumed other fruits. Slightly over one-fifth (21.9%) consumed vitamin A-rich fruits and vegetables, and a high percentage, nearly three-fourths (72.9%), consumed at least one type of vegetable. Slightly over half (58.4%) consumed at least one type of fruit. Therefore, gender did not significantly influence the consumption of these food groups.

Table 4. 23: FOOD GROUPS CONSUMED THE PREVIOUS DAY BY CHILDREN ACCORDING TO GENDER

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Cereals							
No	5	3.9%	15	10.7%	20	7.4%	4.562(0.033*)
Yes	124	96.1%	125	89.3%	249	92.6%	
Whole Grains							
No	13	10.1%	26	18.6%	39	14.5%	3.907 (0.048*)
Yes	116	89.9%	114	81.4%	230	85.5%	
Millets							
No	123	95.3%	135	96.4%	258	95.9%	0.200 (0.655)
Yes	6	4.7%	5	3.6%	11	4.1%	
Roots and Tubers							
No	94	72.9%	104	74.3%	198	73.6%	0.069 (0.792)
Yes	35	27.1%	36	25.7%	71	26.4%	
Pulses							
No	24	18.6%	23	16.4%	47	17.5%	0.220 (0.639)
Yes	105	81.4%	117	83.6%	222	82.5%	
Nuts and Oilseeds							
No	116	89.9%	121	86.4%	237	88.1%	0.782 (0.377)
Yes	13	10.1%	19	13.6%	32	11.9%	
Dairy Products							
No	119	92.2%	124	88.6%	243	90.3%	1.039 (0.308)
Yes	10	7.8%	16	11.4%	26	9.7%	
Flesh foods meats and poultry							
No	115	89.1%	127	90.7%	242	90.0%	0.183 (0.669)

Yes	14	10.9%	13	9.3%	27	10.0%	
Eggs							
No	116	89.9%	128	91.4%	244	90.7%	0.181 (0.671)
Yes	13	10.1%	12	8.6%	25	9.3%	
Dark green vegetables							
No	114	88.4%	121	86.4%	235	87.4%	0.230 (0.632)
Yes	15	11.6%	19	13.6%	34	12.6%	
Vitamin A-rich fruits							
No	124	96.1%	133	95.0%	257	95.5%	0.199 (0.656)
Yes	5	3.9%	7	5.0%	12	4.5%	
Citrus							
No	107	82.9%	114	81.4%	221	82.2%	0.105 (0.745)
Yes	22	17.1%	26	18.6%	48	17.8%	
Vitamin A-rich vegetables							
No	124	96.1%	129	92.1%	253	94.1%	1.902 (0.168)
Yes	5	3.9%	11	7.9%	16	5.9%	
Other vegetables							
No	40	31.0%	44	31.4%	84	31.2%	0.006 (0.941)
Yes	89	69.0%	96	68.6%	185	68.8%	
Other fruits							
No	76	58.9%	70	50.0%	146	54.3%	2.150 (0.143)
Yes	53	41.1%	70	50.0%	123	45.7%	
Vitamin-A-rich fruits and vegetables							
No	106	82.2%	104	74.3%	210	78.1%	2.438 (0.118)
Yes	23	17.8%	36	25.7%	59	21.9%	
Other fruits and vegetables							
No	21	16.3%	21	15.0%	42	15.6%	0.083 (0.773)
Yes	108	83.7%	119	85.0%	227	84.4%	
Any one vegetable							
No	37	28.7%	36	25.7%	73	27.1%	0.299 (0.584)
Yes	92	71.3%	104	74.3%	196	72.9%	
Any one fruit							
No	58	45.0%	54	38.6%	112	41.6%	1.128 (0.288)
Yes	71	55.0%	86	61.4%	157	58.4%	

(p < 0.05*)

The total number of food groups consumed by children, categorized by gender is shown in table 4.24. A significant percentage of children, approximately one-third (30.1%), consumed at least four food groups. Slightly under one-fifth (19.3%) of the children consumed at least five food groups, followed by nearly one-fourth (23.0%) of the children consumed three food groups. Only 1.5% of children reported consuming no food groups, and a slightly higher, though still small, 3.0% consumed just one. Two food groups were consumed by roughly one-tenth of the children (11.5%). At the higher end of the range, relatively few children consumed six or more groups: 8.2% consumed at least six, 3.0% consumed at least seven, and a negligible 0.4% consumed all eight. There were no significant differences in the distribution of total food groups consumed between male and female children. Therefore, gender does not significantly influence the number of food groups consumed.

Table 4. 24: TOTAL FOOD GROUPS CONSUMED BY THE CHILDREN AS PER THE GENDER

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Total Food Groups consumed							
0	1	0.8%	3	2.1%	4	1.5%	7.355(0.499)
1	4	3.1%	4	2.9%	8	3.0%	
2	14	10.9%	17	12.1%	31	11.5%	
3	34	26.4%	28	20.0%	62	23.0%	
4	40	31.0%	41	29.3%	81	30.1%	
5	26	20.2%	26	18.6%	52	19.3%	
6	7	5.4%	15	10.7%	22	8.2%	
7	2	1.6%	6	4.3%	8	3.0%	
8	1	0.8%	0	0.0%	1	0.4%	

Table 4.25 provides insights into the food groups consumed by children the previous day, children (12-24 months) showed significantly elevated consumption percentages compared to younger children (6-12 months) for several food groups. Specifically, the ratio of cereal consumption was 96.7% in older children compared to 78.0% in younger children. Whole grain intake was 91.0% vs. 66.1% and pulse consumption was 85.7% vs. 71.2%. The ratio of nuts and oilseeds was 9.5% in the older group and 20.3% in the younger. Flesh food consumption was 12.4% vs. 1.7%, dark green vegetable consumption was 15.2% vs. 3.4%,

and citrus fruit consumption was 20.5% vs. 8.5%. Also, other vegetables were consumed by 76.2% of older children compared to 42.4% of younger children, and other fruits and vegetables were consumed by 89.0% vs. 67.8%. Additionally, any one vegetable was consumed by 80.0% vs. 47.5%. Millets were consumed more by younger children 11.9% vs 1.9%. Therefore, older children, aged 12-24 months, demonstrated a significantly greater consumption of various food groups compared to younger children, aged 6-12 months. However, there were no significant differences in the consumption of roots and tubers, eggs, Vitamin A-rich fruits, Vitamin A-rich vegetables, other fruits, and Vitamin A-rich fruits and vegetables. The children reported similar consumption ratios for these food groups across both age groups.

Table 4. 25: FOOD GROUPS CONSUMED THE PREVIOUS DAY BY CHILDREN ACCORDING TO AGE

Category	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Cereals							
No	13	22.0%	7	3.3%	20	7.4%	23.405(0.000***)
Yes	46	78.0%	203	96.7%	249	92.6%	
Whole Grains							
No	20	33.9%	19	9.0%	39	14.5%	22.946 (0.000***)
Yes	39	66.1%	191	91.0%	230	85.5%	
Millets							
No	52	88.1%	206	98.1%	258	95.9%	11.649 (0.001*)
Yes	7	11.9%	4	1.9%	11	4.1%	
Roots and Tubers							
No	48	81.4%	150	71.4%	198	73.6%	2.337 (0.126)
Yes	11	18.6%	60	28.6%	71	26.4%	
Pulses							
No	17	28.8%	30	14.3%	47	17.5%	6.742 (0.009*)
Yes	42	71.2%	180	85.7%	222	82.5%	
Nuts and Oilseeds							
No	47	79.7%	190	90.5%	237	88.1%	5.140 (0.023*)
Yes	12	20.3%	20	9.5%	32	11.9%	
Dairy Products							
No	57	96.6%	186	88.6%	243	90.3%	3.409 (0.065)
Yes	2	3.4%	24	11.4%	26	9.7%	

Flesh foods meats and poultry							
No	58	98.3%	184	87.6%	242	90.0%	5.825 (0.016*)
Yes	1	1.7%	26	12.4%	27	10.0%	
Eggs							
No	56	94.9%	188	89.5%	244	90.7%	1.588 (0.208)
Yes	3	5.1%	22	10.5%	25	9.3%	
Dark green vegetables							
No	57	96.6%	178	84.8%	235	87.4%	5.856 (0.016*)
Yes	2	3.4%	32	15.2%	34	12.6%	
Vitamin A-rich fruits							
No	57	96.6%	200	95.2%	257	95.5%	0.203 (0.652)
Yes	2	3.4%	10	4.8%	12	4.5%	
Citrus							
No	54	91.5%	167	79.5%	221	82.2%	4.526 (0.033*)
Yes	5	8.5%	43	20.5%	48	17.8%	
Vitamin A-rich vegetables							
No	54	91.5%	199	94.8%	253	94.1%	0.862 (0.353)
Yes	5	8.5%	11	5.2%	16	5.9%	
Other vegetables							
No	34	57.6%	50	23.8%	84	31.2%	24.528 (0.000*)
Yes	25	42.4%	160	76.2%	185	68.8%	
Other fruits							
No	32	54.2%	114	54.3%	146	54.3%	0.000 (0.995)
Yes	27	45.8%	96	45.7%	123	45.7%	
Vitamin-A-rich fruits and vegetables							
No	50	84.7%	160	76.2%	210	78.1%	1.969 (0.161)
Yes	9	15.3%	50	23.8%	59	21.9%	
Other fruits and vegetables							
No	19	32.2%	23	11.0%	42	15.6%	15.787 (0.000*)
Yes	40	67.8%	187	89.0%	227	84.4%	
Any one vegetable							
No	31	52.5%	42	20.0%	73	27.1%	24.669 (0.000*)
Yes	28	47.5%	168	80.0%	196	72.9%	
Any one fruit							
No	29	49.2%	83	39.5%	112	41.6%	1.757 (0.185)
Yes	30	50.8%	127	60.5%	157	58.4%	

(p < 0.05*, p < 0.001*)**

Table 4.26 illustrated the total number of food groups consumed by children, categorized by age groups: 6-12 months and 12-24 months. Approximately one-third (31.4%) of older children consumed four food groups compared to 25.4% of younger children with an overall ratio of 30%. 0lder children consumed three food groups with a slightly increased ratio of 23% compared to that of 22% of younger children. Furthermore, 8.5% of younger children consumed only one food group, compared to 1.4% in the older group. The ratio of consuming two food groups was also significantly higher in younger children (20.3%) compared to older children (9.0%). Slightly over one-fifth (21.0%) of older children consumed five food groups compared to 13.6% of younger children. A smaller fraction (10.0%) of older children consumed six food groups, compared to 1.7% of younger children. The overall distribution of food group consumption was significantly different between the two age groups.

Table 4. 26: TOTAL FOOD GROUPS CONSUMED BY CHILDREN AS PER THE AGE

Category	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Total Food Groups consumed							
0	4	6.8%	0	0.0%	4	1.5%	33.491(0.000***)
1	5	8.5%	3	1.4%	8	3.0%	
2	12	20.3%	19	9.0%	31	11.5%	
3	13	22.0%	49	23.3%	62	23.0%	
4	15	25.4%	66	31.4%	81	30.1%	
5	8	13.6%	44	21.0%	52	19.3%	
6	1	1.7%	21	10.0%	22	8.2%	
7	1	1.7%	7	3.3%	8	3.0%	
8	0	0.0%	1	0.5%	1	0.4%	

(p< 0.000*)**

The data on dietary diversity scores of children gender-wise (Table 4.27), indicates that about 82% of the children overall consumed breastmilk with no significant difference in gender. A high percentage of children, 93.3%, consumed grains, white pale starchy roots,

tubers, and plantains. Specifically, 96.1% of females and 90.7% of males consumed these foods. Approximately 85.5% of the children consumed beans, peas, lentils, nuts, and seeds, followed by 86.0% of females and 85.0% of males consumed these foods. A smaller percentage (9.7%,) of children, consumed dairy products. The majority of children, 90.0%, did not consume flesh foods. Egg consumption was lower with a ratio of only 9.3% of children consuming eggs. A smaller proportion of children (22%) consumed vitamin-A-rich fruits and vegetables. However, the consumption of other fruits and vegetables was significantly higher at 84.4%. The dietary diversity scores, representing the number of food groups consumed, revealed a varied distribution among the children. A small percentage, 2.2%, consumed only one food group, and approximately 4.8% consumed two. Nearly one quarter, 22.3%, consumed three food groups. A significant percentage, 41.6%, representing the largest portion of the population, consumed four food groups. Slightly under one quarter, 23.8%, consumed five food groups. Notably, the largest percentage of children consumed four food groups, while very few children consumed seven food groups.

Table 4. 27: GENDER WISE DIETARY DIVERSITY SCORES OF CHILDREN

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Breastmilk							
No	24	18.6%	24	17.1%	48	17.8%	0.098 (0.754)
Yes	105	81.4%	116	82.9%	221	82.2%	
Grains white pale starchy roots tubers and plantains							
No	5	3.9%	13	9.3%	18	6.7%	3.147 (0.076)
Yes	124	96.1%	127	90.7%	251	93.3%	
Beans peas lentils nuts and seeds							
No	18	14.0%	21	15.0%	39	14.5%	0.059 (0.808)
Yes	111	86.0%	119	85.0%	230	85.5%	
Dairy products milk infant formula yogurt cheese							
No	119	92.2%	124	88.6%	243	90.3%	1.039 (0.308)
Yes	10	7.8%	16	11.4%	26	9.7%	
Flesh foods meat fish poultry organ meats							
No	115	89.1%	127	90.7%	242	90.0%	0.183 (0.669)
Yes	14	10.9%	13	9.3%	27	10.0%	
Eggs							

No	116	89.9%	128	91.4%	244	90.7%	0.181(0.671)
Yes	13	10.1%	12	8.6%	25	9.3%	
Vitamin-A-rich fruits and vegetables							
No	106	82.2%	104	74.3%	210	78.1%	2.438 (0.118)
Yes	23	17.8%	36	25.7%	59	21.9%	
Other fruits and vegetables							
No	21	16.3%	21	15.0%	42	15.6%	0.083 (0.773)
Yes	108	83.7%	119	85.0%	227	84.4%	
Total dietary diversity score							
1	1	0.8%	5	3.6%	6	2.2%	4.505 (0.609)
2	8	6.2%	5	3.6%	13	4.8%	
3	32	24.8%	28	20.0%	60	22.3%	
4	53	41.1%	59	42.1%	112	41.6%	
5	28	21.7%	36	25.7%	64	23.8%	
6	6	4.7%	6	4.3%	12	4.5%	
7	1	0.8%	1	0.7%	2	0.7%	

The data presented in Table 4.28 provides insights into the dietary diversity of children aged 6 to 24 months. Among children aged 6-12 months, 93.2% were breastfed, while only 79.0% of children aged 12-24 months received breastmilk. This indicates a significantly higher proportion of younger children being breastfed. Overall, 82.2% of all children were breastfed. A notable difference is observed in the consumption of grains and starchy foods. Only 22% of children aged 6-12 months did not consume these foods, compared to just 2.4% in the 12–24-month age group. This suggests that a smaller fraction of older children are missing out on these essential foods. When looking at beans, peas, lentils, nuts, and seeds, there was no significant difference between age groups. Approximately 79.7% of younger children and 87.1% of older children consumed these foods, leading to an overall consumption rate of 85.5% across all children. The data shows that 96.6% of younger children did not consume dairy products, while 88.6% of older children also did not consume them. Flesh foods such as meat and fish were consumed by only 1.7% of younger children compared to 12.4% of older children, indicating a significantly higher intake among the older group. In total, only 10.0% of all children consumed flesh foods. Overall, eggs consumption showed only 9.3% of all children consumed eggs. The intake of vitamin-A-rich fruits and vegetables was reported at 84.7% for younger children and 76.2% for older ones, with no significant difference

found. A significant disparity is observed in the consumption of other fruits and vegetables: 32.2% of younger children did not consume them compared to just 11.0% in the older group. The distribution of total dietary diversity scores of children, representing the number of food groups consumed, varied significantly between the two age groups. A substantial proportion of children in both age groups consumed three or four food groups. Specifically, 28.8% of younger children and 20.5% of older children consumed three food groups. A significant proportion of both age groups, approximately 42%, consumed four food groups. However, a significantly higher proportion of older children, 27.6%, consumed five food groups, compared to only 10.2% of younger children. A small proportion of younger children, 1.7%, consumed six food groups, while 5.2% of older children did. The consumption of seven food groups was negligible in both groups.

Table 4. 28: AGEWISE DIETARY DIVERSITY SCORES OF CHILDREN

Category	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Breastmilk							
No	4	6.8%	44	21.0%	48	17.8%	6.311 (0.012*)
Yes	55	93.2%	166	79.0%	221	82.2%	
Grains white pale starchy roots tubers and plantains							
No	13	22.0%	5	2.4%	18	6.7%	28.493 (0.000***)
Yes	46	78.0%	205	97.6%	251	93.3%	
Beans peas lentils nuts and seeds							
No	12	20.3%	27	12.9%	39	14.5%	2.080 (0.149)
Yes	47	79.7%	183	87.1%	230	85.5%	
Dairy products milk infant formula yogurt cheese							
No	57	96.6%	186	88.6%	243	90.3%	3.409 (0.065)
Yes	2	3.4%	24	11.4%	26	9.7%	
Flesh foods meat fish poultry organ meats							
No	58	98.3%	184	87.6%	242	90.0%	5.825 (0.016*)
Yes	1	1.7%	26	12.4%	27	10.0%	
Eggs							
No	56	94.9%	188	89.5%	244	90.7%	1.588 (0.208)
Yes	3	5.1%	22	10.5%	25	9.3%	
Vitamin-A-rich fruits and vegetables							
No	50	84.7%	160	76.2%	210	78.1%	1.969 (0.161)
Yes	9	15.3%	50	23.8%	59	21.9%	

Other fruits and vegetables							
No	19	32.2%	23	11.0%	42	15.6%	15.787 (0.000*)
Yes	40	67.8%	187	89.0%	227	84.4%	
Total dietary diversity score							
1	4	6.8%	2	1.0%	6	2.2%	20.664 (0.002*)
2	6	10.2%	7	3.3%	13	4.8%	
3	17	28.8%	43	20.5%	60	22.3%	
4	25	42.4%	87	41.4%	112	41.6%	
5	6	10.2%	58	27.6%	64	23.8%	
6	1	1.7%	11	5.2%	12	4.5%	
7	0	0.0%	2	1.0%	2	0.7%	

(p < 0.05*, p< 0.001*)**

Table 4.29 presents dietary diversity scores (DDS) by gender, Regarding MDD, 29.0% of the total children met the criteria, with 27.1% of females and 30.7% of males achieving MDD. In terms of MMF, a significantly higher percentage of children met the criteria. Overall, 91.8% of children met MMF, with 90.7% of females and 92.9% of males meeting the requirement. For MAD, 28.6% of the total children met the criteria. Specifically, 26.4% of females and 30.7% of males met MAD. The data indicates that while meal frequency (MMF) was generally well-maintained across both genders, dietary diversity (MDD and MAD) remained relatively low. There were no statistically significant gender disparities in any of the three indicators. Therefore, both male and female children exhibited similar patterns of dietary diversity and meal frequency, with a notable proportion not meeting the recommended dietary diversity standards.

Dietary diversity scores (DDS) categorized by age are depicted in Table 4.30. The data showed a significant difference among both groups in terms of achieving Minimum Dietary Diversity. Notably, a higher percentage of older children (12-24 months), 33.8%, met the

Table 4. 29: DIETARY DIVERSITY SCORE ACCORDING TO GENDER

Category		**Female (N=129)**		**Male (N=140)**		**Total (N=269)**		**Chi-square (p-value)**
		N	**%**	**N**	**%**	**N**	**%**	
MDD	No	94	72.9%	97	69.3%	191	71.0%	0.419 (0.518)
	Yes	35	27.1%	43	30.7%	78	29.0%	

MMF	No	12	9.3%	10	7.1%	22	8.2%	0.417 (0.518)
	Yes	117	90.7%	130	92.9%	247	91.8%	
MAD	No	95	73.6%	97	69.3%	192	71.4%	0.624 (0. 430)
	Yes	34	26.4%	43	30.7%	77	28.6%	

Minimum Dietary Diversity (MDD) criteria, compared to only 11.9% of younger children (6-12 months). Overall, 29.0% of the children met the MDD criteria. A high percentage of children across both age groups met the Minimum Meal Frequency (MMF). Specifically, 93.2% of younger children and 91.4% of older children met MMF. Similar to MDD, a significantly higher percentage of older children, 33.3%, met the Minimum Acceptable Diet (MAD), compared to only 11.9% of younger children. Overall, 28.6% of the children met the MAD. A significantly higher ratio of older children met the MDD and MAD compared to younger children. However, meal frequency was consistently high across both age groups. Therefore, while meal frequency was generally adequate, dietary diversity, as measured by MDD and MAD, was significantly lower in younger children (Table 4.30)

Table 4. 30: DIETARY DIVERSITY SCORE ACCORDING TO AGE

Category		**6 - 12 months (N=59)**		**12-24 months (N=210)**		**Total (N=269)**		**Chi-square (p-value)**
		N	**%**	**N**	**%**	**N**	**%**	
MDD	No	52	88.1%	139	66.2%	191	71.0%	10.774 (0.001***)
	Yes	7	11.9%	71	33.8%	78	29.0%	
MMF	No	4	6.8%	18	8.6%	22	8.2%	0.197 (0.657)
	Yes	55	93.2%	192	91.4%	247	91.8%	
MAD	No	52	88.1%	140	66.7%	192	71.4%	10.391 (0.001***)
	Yes	7	11.9%	70	33.3%	77	28.6%	

(p< 0.001*)**

FIGURE 4. 2: PREVALENCE OF DIETARY DIVERSITY BY GENDER

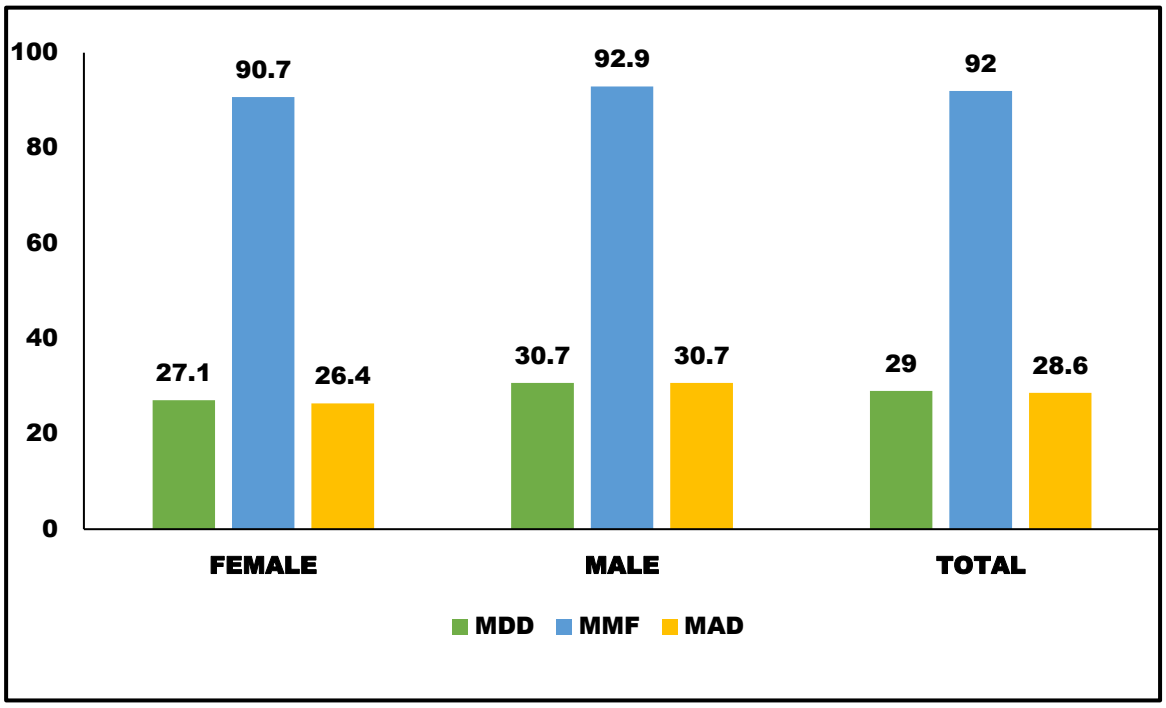


FIGURE 4. 3: PREVALENCE OF DIETARY DIVERSITY BY AGE

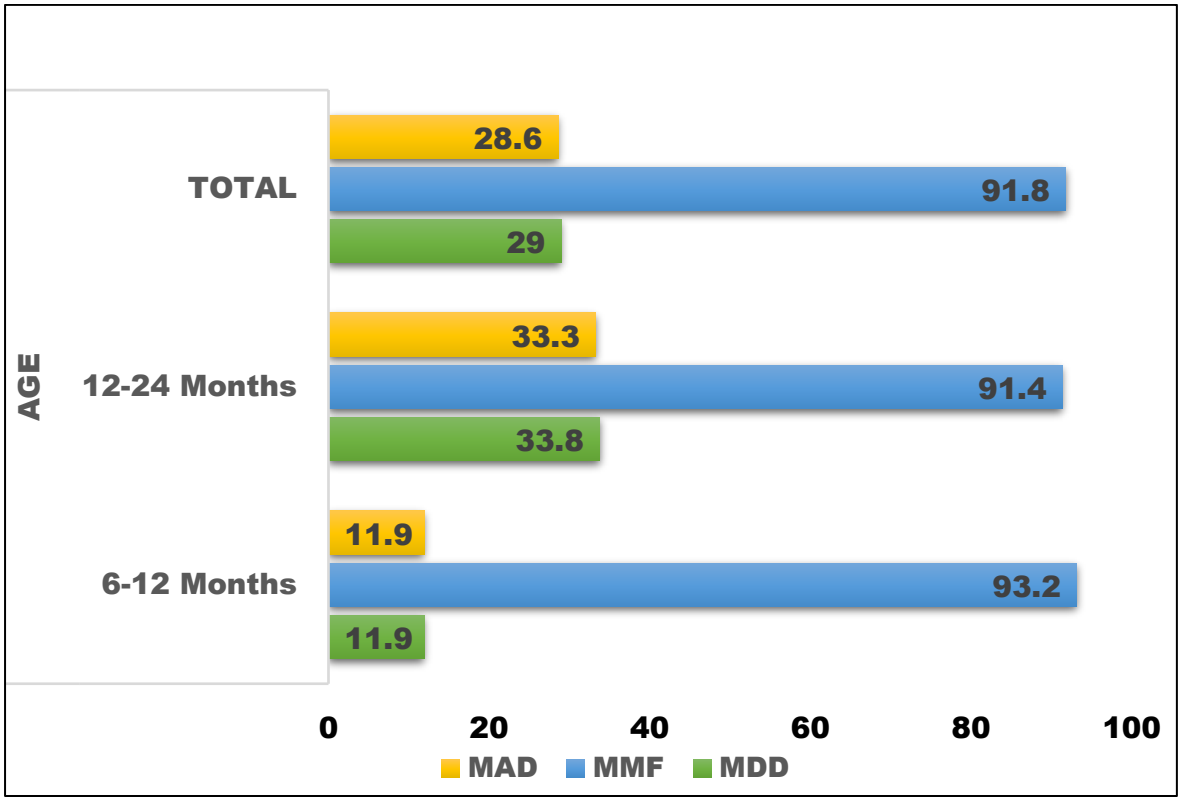


Table 4.31 examines the gender-wise consumption of unhealthy ultra-processed foods by children. A very small percentage (1.1%) of children, reported consuming soft drinks. A significant percentage of the children, 74.0%, consumed baked or grain-based sweets. Male

children consumed slightly more of these sweets (76.4%) compared to female children (71.3%). A notable percentage of children (37.9% total) consumed other sweets. However, male children consumed a higher percentage of other sweets (41.4%) than female children (34.1%). The consumption of processed and unprocessed meat was not found among the children. A very small percentage of children (2.6% total) consumed deep-fried foods, followed by (1.5% total) children consumed noodles and fast foods. A notable percentage of children (29.0% total) consumed packaged ultra-processed salty snacks, whereas, children consumed slightly more of these snacks (29.3%) than female children (28.7%). In each category of ultra-processed food consumption, male children consumed a slightly equal to, or higher percentage of each food category than female children. However, there were no statistically significant gender differences in the consumption of any of these ultra-processed food categories.

Table 4. 31: GENDERWISE UNHEALTHY ULTRA PROCESSED FOODS CONSUMED BY CHILDREN

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Soft drinks							
No	128	99.2%	138	98.6%	266	98.9%	0.260 (0.754)
Yes	1	0.8%	2	1.4%	3	1.1%	
Baked or grain-based sweets							
No	37	28.7%	33	23.6%	70	26.0%	0.911 (0.340)
Yes	92	71.3%	107	76.4%	199	74.0%	
Other sweets							
No	85	65.9%	82	58.6%	167	62.1%	1.528 (0.216)
Yes	44	34.1%	58	41.4%	102	37.9%	
Processed meat							
No	129	100.0%	140	100.0%	269	100.0%	-
Unprocessed red meat							
No	128	99.2%	138	98.6%	266	98.9%	0.260 (0.610)
Yes	1	0.8%	2	1.4%	3	1.1%	
Deep fried food							
No	126	97.7%	136	97.1%	262	97.4%	0.075 (0.784)
Yes	3	2.3%	4	2.9%	7	2.6%	
Fast food Instant noodles							
No	128	99.2%	137	97.9%	265	98.5%	0.857 (0.355)

Yes	1	0.8%	3	2.1%	4	1.5%	
Packaged ultra-processed salty snacks							
No	92	71.3%	99	70.7%	191	71.0%	0.012 (0.913)
Yes	37	28.7%	41	29.3%	78	29.0%	

Table 4.32 outlines the age-specific consumption of various unhealthy ultra-processed foods among children, comparing those aged 6-12 months to those aged 12-24 months. Regarding soft drinks, only a small fraction of children (1.1% overall) consumed them, with no younger children (6-12 months) reporting any intake, while 1.4% of older children (12-24 months). A substantial portion (74.0%) of children consumed baked or grain-based sweets, with slightly more older children (75.2%) indulging compared to younger ones (69.5%). In contrast, there was a marked difference in the consumption of other sweets, with significantly more older children (45.7%) consuming them compared to younger children (10.2%) ($p < 0.001$). Notably, no children from either age group reported consuming processed meat. Similarly, only a small percentage (2.6% overall) consumed deep-fried foods, with slightly more older children (2.9%) than younger ones (1.7%). Fast food and instant noodles were consumed by a mere 1.5% of children overall, with none from the younger group and 1.9% from the older group; again, there was no significant difference between age groups. Lastly, a significant disparity was noted in the consumption of packaged ultra-processed salty snacks, where a higher percentage of older children (34.8%) consumed these compared to younger children (8.5%) ($p < 0.001$).

Table 4. 32: AGEWISE UNHEALTHY ULTRA PROCESSED FOODS CONSUMED BY CHILDREN

Category	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Soft drinks							
No	59	100.0%	207	98.6%	266	98.9%	0.852 (0.356)
Yes	0	0.0%	3	1.4%	3	1.1%	
Baked or grain-based sweets							
No	18	30.5%	52	24.8%	70	26.0%	0.790 (0.374)
Yes	41	69.5%	158	75.2%	199	74.0%	
Other sweets							
No	53	89.8%	114	54.3%	167	62.1%	24.721 (0.000^{***})
Yes	6	10.2%	96	45.7%	102	37.9%	

Processed meat							
No	59	100.0%	210	100.0%	269	100.0%	-
Unprocessed red meat							
No	59	100.0%	207	98.6%	266	98.9%	0.852 (0.356)
Yes	0	0.0%	3	1.4%	3	1.1%	
Deep fried food							
No	58	98.3%	204	97.1%	262	97.4%	0.245 (0.620)
Yes	1	1.7%	6	2.9%	7	2.6%	
Fast food Instant noodles							
No	59	100.0%	206	98.1%	265	98.5%	1.141 (0.285)
Yes	0	0.0%	4	1.9%	4	1.5%	
Packaged ultra-processed salty snacks							
No	54	91.5%	137	65.2%	191	71.0%	15.459 (0.000***)
Yes	5	8.5%	73	34.8%	78	29.0%	

(p< 0.001*)**

Table 4.33 highlights the gender-wise consumption of unhealthy foods among children aged 6-24 months, revealing no statistically significant differences between male and female children across various food categories. Sweet beverages were consumed by 61.2% of females and 57.9% of males, while unhealthy food consumption was slightly higher among males (87.1%) compared to females (80.6%). Similarly, sweet foods were consumed by 76.7% of females and 82.9% of males, and savoury or fried snacks were reported by 29.5% of females and 32.9% of males. A high percentage of children reported zero vegetable or fruit consumption, with 83.7% of females and 76.4% of males. Animal source food consumption was nearly identical, with 25.6% of females and 25.7% of males, while egg and flesh food consumption was reported by 19.4% of females and 15.0% of males. Overall, while male children showed slightly higher percentages in most categories, none of the differences were statistically significant.

Table 4. 33: UNHEALTHY FOOD CONSUMPTIONS 6-23 MONTHS BY GENDER

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Sweet beverage consumption							
No	50	38.8%	59	42.1%	109	40.5%	0.319 (0.572)
Yes	79	61.2%	81	57.9%	160	59.5%	

Unhealthy food consumption							
No	25	19.4%	18	12.9%	43	16.0%	2.127 (0.145)
Yes	104	80.6%	122	87.1%	226	84.0%	
Sweet food consumption							
No	30	23.3%	24	17.1%	54	20.1%	1.564 (0.211)
Yes	99	76.7%	116	82.9%	215	79.9%	
Savory and fried snack consumption							
No	91	70.5%	94	67.1%	185	68.8%	0.361 (0.548)
Yes	38	29.5%	46	32.9%	84	31.2%	
Zero vegetable or fruit consumption							
No	21	16.3%	33	23.6%	54	20.1%	2.225 (0.136)
Yes	108	83.7%	107	76.4%	215	79.9%	
Animal-source food consumption							
No	96	74.4%	104	74.3%	200	74.3%	0.001(0.980)
Yes	33	25.6%	36	25.7%	69	25.7%	
Egg and flesh food consumption							
No	104	80.6%	119	85.0%	223	82.9%	5.679 (0.341)
Yes	25	19.4%	21	15.0%	46	17.1%	

The data in Table 4.34 highlights significant disparities in unhealthy food consumption among children aged 6-23 months. Sweet beverage consumption was higher in the older age group (12-24 months), with around 65% consuming sweet beverages compared to 41% in the younger group (6-12 months), this difference was statistically significant ($p = 0.001$). A larger proportion (87%) of older children consumed unhealthy foods as compared to the younger children (73%). This difference was statistically significant ($p = 0.008$). Therefore, unhealthy food consumption was significantly higher in older children. While a higher percentage of older children (82.4%) consumed sweet foods compared to younger children (71.2%). About one-third (31.2%) of the total children consumed Savory and fried snacks. Conversely, a significantly higher percentage of older children (37.1%) consumed these snacks compared to younger children (10.2%). This difference was highly significant ($p = 0.000$). Additionally, zero vegetable or fruit consumption remained consistently high across both age groups, affecting around 80% of children. Animal source food and egg/flesh food consumption were notably higher among older children, with a ratio of 26% and 17% respectively. However, a higher percentage of older children (30.5%) consumed animal-

source food compared to younger children (8.5%). Similarly, the ratio of older children was higher as compared to the younger children in consumption of eggs and flesh foods (20% vs 7%). Therefore, there was a statistical difference with (p = 0.017). Older children consumed significantly more egg and flesh foods.

Table 4. 34: UNHEALTHY FOOD CONSUMPTIONS 6-23 MONTHS BY AGE

Category	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Sweet beverage consumption							
No	35	59.3%	74	35.2%	109	40.5%	11.085(0.001***)
Yes	24	40.7%	136	64.8%	160	59.5%	
Unhealthy food consumption							
No	16	27.1%	27	12.9%	43	16.0%	6.976(0.008*)
Yes	43	72.9%	183	87.1%	226	84.0%	
Sweet food consumption							
No	17	28.8%	37	17.6%	54	20.1%	3.598 (0.058)
Yes	42	71.2%	173	82.4%	215	79.9%	
Savory and fried snack consumption							
No	53	89.8%	132	62.9%	185	68.8%	15.604(0.000***)
Yes	6	10.2%	78	37.1%	84	31.2%	
Zero vegetable or fruit consumption							
No	7	11.9%	47	22.4%	54	20.1%	3.175 (0.075)
Yes	52	88.1%	163	77.6%	215	79.9%	
Animal-source food consumption							
No	54	91.5%	146	69.5%	200	74.3%	11.691(0.001***)
Yes	5	8.5%	64	30.5%	69	25.7%	
Egg and flesh food consumption							
No	55	93.2%	168	80.0%	223	82.9%	5.679 (0. .017*)
Yes	4	6.8%	42	20.0%	46	17.1%	

(p < 0.05*, p < 0.001*)**

Table 4.35 examined the distribution of Non-Communicable Disease (NCD) Protect and Risk scores, derived from Dietary Quality Questionnaire (DQQ) data, between female and male children. For the NCD Protect score, the most frequent category was a score of 4, observed in 31.6% of the total sample, with females showing a higher percentage (36.4%) compared to males (27.1%). The score of 5 was the next most common, representing 26.4%

of the total, with a slightly higher percentage among males (30.0%) compared to females (22.5%). The NCD Risk score showed that a score of 1 was the most prevalent, comprising 39.8% of the total sample. Males had a slightly higher percentage (40.0%) compared to females (39.5%). A score of 2 also represented a substantial portion, with 26.4% of the total and similar percentages between males (27.1%) and females (25.6%). There was no significant difference in NCD Protect score and NCD Risk score between males and females.

Table 4. 35: DQQ NCD PROTECT SCORES AND RISK SCORES BY GENDER

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
NCD Protect Score							
1	2	1.6%	3	2.1%	5	1.9%	7.260 (0.402)
2	7	5.4%	8	5.7%	15	5.6%	
3	23	17.8%	21	15.0%	44	16.4%	
4	47	36.4%	38	27.1%	85	31.6%	
5	29	22.5%	42	30.0%	71	26.4%	
6	13	10.1%	22	15.7%	35	13.0%	
7	8	6.2%	5	3.6%	13	4.8%	
NCD Risk Score							
0	25	19.4%	18	12.9%	43	16.0%	3.415 (0.491)
1	51	39.5%	56	40.0%	107	39.8%	
2	33	25.6%	38	27.1%	71	26.4%	
3	18	14.0%	27	19.3%	45	16.7%	
4	2	1.6%	1	0.7%	3	1.1%	

Table 4.36 portrays the data on NCD Protect and Risk scores across two age categories (12-24 months and 6-12 months) revealed significant findings in Table 4.35. For the NCD Protect score, the most frequent category was a score of 4, observed in 31.6% of the total sample. Children aged 12-24 months showed a slightly higher percentage (31.9%) compared to children aged 6-12 months (30.5%). The score of 5 was the next most common, representing 26.4% of the total, with a significantly higher percentage among children aged 12-24 months (28.6%) compared to children aged 6-12 months (18.6%). The NCD Risk score showed that a score of 1 was the most prevalent, comprising 39.8% of the

total sample. Children aged 6-12 months had a significantly higher percentage (59.3%) compared to children aged 12-24 months (34.3%). A score of 2 also represented a substantial portion, with 26.4% of the total, with a significantly higher percentage among children aged 12-24 months (31.0%) compared to children aged 6-12 months (10.2%). There was a statistically significant difference in both NCD Protect score and NCD Risk score between the two age groups.

Table 4. 36: DQQ NCD PROTECT SCORES AND RISK SCORES BY AGE

Category	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
NCD Protect Score							
1	5	8.5%	0	0.0%	5	1.9%	29.171 (0.000***)
2	6	10.2%	9	4.3%	15	5.6%	
3	14	23.7%	30	14.3%	44	16.4%	
4	18	30.5%	67	31.9%	85	31.6%	
5	11	18.6%	60	28.6%	71	26.4%	
6	3	5.1%	32	15.2%	35	13.0%	
7	2	3.4%	11	5.2%	13	4.8%	
NCD Risk Score							
0	16	27.1%	27	12.9%	43	16.0%	3.415 (0.000***)
1	35	59.3%	72	34.3%	107	39.8%	
2	6	10.2%	65	31.0%	71	26.4%	
3	27	19.3%	18	14.0%	45	16.7%	
4	1	0.7%	2	1.6%	3	1.1%	

(p< 0.0001*)**

FOOD FREQUENCY QUESTIONNAIRE

Table 4.37 presents data on the consumption frequency of various ultra-processed foods among respondents. A significant majority of participants (96.7%) reported never consuming infant formula, indicating low consumption of this ultra-processed food item. Conversely, a very small percentage (2.2%) reported daily consumption. Similarly, the consumption of cerelacs was also not reported with a higher fraction of 90.3%. And only about 5% of the children were consuming cerelacs daily. However, there were no significant disparities among genders. In terms of consumption of bread and buns, it varied among respondents, with the majority (45.4%) reporting never consuming it. However, a moderate

portion reported Occasional consumption with 20.8%, 9.3% consuming once a month and 8.6% reporting consumption once every 10 days. Almost half of the children consumed biscuits daily with a ratio of 49.4%. However, this also shows disparity across genders, with more percentage of male children (55%) consuming biscuits on a daily basis as compared to that of female children (43.4%). A notable proportion (98.5%) of children did not consume cornflakes and chocos. Sev-mamra was consumed once a week with a moderate ratio of 26.4%. Among the genders, female children were consuming sev-mamra once a week with a higher ratio as compared to the male children (31% vs 22.1%). Whereas, 21.6% of children never consumed sev mamra. Significantly, the ratio of children (82.5%) never consumed Maggie was observed higher.

Table 4. 37: FREQUENCY OF ULTRA PROCESSED FOODS

	Female (N=129)		Male (N=140)		Total (N=269)	
Ultra-Processed Food	**N**	**%**	**N**	**%**	**N**	**%**
Infant formula						
Daily	3	2.3%	3	2.1%	6	2.2%
Never	123	95.3%	137	97.9%	260	96.7%
Occasionally	1	0.8%	0	0.0%	1	0.4%
Once in 15 days	1	0.8%	0	0.0%	1	0.4%
Once in a month	1	0.8%	0	0.0%	1	0.4%
Cerelacs						
4-5 times a week	1	0.8%	0	0.0%	1	0.4%
Daily	8	6.2%	6	4.3%	14	5.2%
Never	113	87.6%	130	92.9%	243	90.3%
Occasionally	0	0.0%	2	1.4%	2	0.7%
Once a week	3	2.3%	1	0.7%	4	1.5%
Once in 10 days	1	0.8%	0	0.0%	1	0.4%
Thrice a week	3	2.3%	1	0.7%	4	1.5%
Bread / Buns						
4-5 times a week	1	0.8%	1	0.7%	2	0.7%
Never	58	45.0%	64	45.7%	122	45.4%
Occasionally	31	24.0%	25	17.9%	56	20.8%
Once a week	13	10.1%	7	5.0%	20	7.4%
Once in 10 days	14	10.9%	9	6.4%	23	8.6%
Once in 15 days	4	3.1%	14	10.0%	18	6.7%

Once in a month	7	5.4%	18	12.9%	25	9.3%
Thrice a week	1	0.8%	2	1.4%	3	1.1%
Biscuits						
4-5 times a week	13	10.1%	5	3.6%	18	6.7%
Daily	56	43.4%	77	55.0%	133	49.4%
Never	6	4.7%	14	10.0%	20	7.4%
Occasionally	11	8.5%	2	1.4%	13	4.8%
Once a week	22	17.1%	18	12.9%	40	14.9%
Once in 10 days	6	4.7%	7	5.0%	13	4.8%
Once in 15 days	1	0.8%	3	2.1%	4	1.5%
Once in a month	1	0.8%	3	2.1%	4	1.5%
Thrice a week	13	10.1%	11	7.9%	24	8.9%
Cornflakes /Chocos						
Never	125	96.9%	140	100.0%	265	98.5%
Occasionally	1	0.8%	0	0.0%	1	0.4%
Once a week	1	0.8%	0	0.0%	1	0.4%
Once in a month	1	0.8%	0	0.0%	1	0.4%
Thrice a week	1	0.8%	0	0.0%	1	0.4%
Sev mamra/ papad poha						
4-5 times a week	17	13.2%	30	21.4%	47	17.5%
Daily	8	6.2%	12	8.6%	20	7.4%
Never	22	17.1%	36	25.7%	58	21.6%
Occasionally	6	4.7%	1	0.7%	7	2.6%
Once a week	40	31.0%	31	22.1%	71	26.4%
Once in 10 days	12	9.3%	13	9.3%	25	9.3%
Once in 15 days	7	5.4%	3	2.1%	10	3.7%
Once in a month	3	2.3%	1	0.7%	4	1.5%
Thrice a week	14	10.9%	13	9.3%	27	10.0%
Instant Noodles (Maggie)						
4-5 times a week	0	0.0%	1	0.7%	1	0.4%
Never	104	80.6%	118	84.3%	222	82.5%
Occasionally	4	3.1%	2	1.4%	6	2.2%
Once a week	3	2.3%	7	5.0%	10	3.7%
Once in 10 days	4	3.1%	2	1.4%	6	2.2%
Once in 15 days	2	1.6%	5	3.6%	7	2.6%
Once in a month	10	7.8%	5	3.6%	15	5.6%
Thrice a week	2	1.6%	0	0.0%	2	0.7%

The data displays the consumption frequency of foods high in fat among respondents. Most respondents reported consumption of sev once a week, with the highest percentage (31.6%) A notable proportion (29.4%) reported never consuming sev. The consumption of sev, once a week, among female children (36.4%) was more than the male child (27.1%). Consumption of chips and Kurkure varied among respondents, with the highest percentage (32%) reporting never consuming them. However, a significant portion (13.8%) reported consumption of chips and Kurkure once a week, with 11.9% reporting occasional consumption and 11.2% reporting consumption once in 10 days. A remarkable ratio of respondents (98.5%) reported never consuming Choda Fadi or Mathiya, indicating low consumption of these high-fat foods. The majority of respondents (24.5%) reported once-a-week consumption of Papdi and Gathiya. Followed by 23.8% of them reported never consuming papdi and gathiya, and 14.5% of them consumed it 4-5 times a week. The majority of the participants (81%) responded never consumed Namkeen and Chavanu. (Table 4.38).

TABLE 4. 38 FREQUENCY OF FOODS HIGH IN FAT

Foods High in Fat	Female (N=129)		Male (N=140)		Total (N=269)	
	N	%	N	%	N	%
Sev						
4-5 times a week	18	14.0%	27	19.3%	45	16.7%
Daily	5	3.9%	6	4.3%	11	4.1%
Never	31	24.0%	48	34.3%	79	29.4%
Occasionally	7	5.4%	2	1.4%	9	3.3%
Once a week	47	36.4%	38	27.1%	85	31.6%
Once in 10 days	10	7.8%	11	7.9%	21	7.8%
Once in 15 days	2	1.6%	1	0.7%	3	1.1%
Once in a month	3	2.3%	0	0.0%	3	1.1%
Thrice a week	6	4.7%	7	5.0%	13	4.8%
Chips /Kurkure						
4-5 times a week	9	7.0%	12	8.6%	21	7.8%
Daily	7	5.4%	9	6.4%	16	5.9%
Never	41	31.8%	45	32.1%	86	32.0%
Occasionally	18	14.0%	14	10.0%	32	11.9%
Once a week	15	11.6%	22	15.7%	37	13.8%

Once in 10 days	15	11.6%	15	10.7%	30	11.2%
Once in 15 days	8	6.2%	8	5.7%	16	5.9%
Once in a month	7	5.4%	6	4.3%	13	4.8%
Thrice a week	9	7.0%	9	6.4%	18	6.7%
Choda Fadi/Mathiya						
4-5 times a week	0	0.0%	1	0.7%	1	0.4%
Never	128	99.2%	137	97.9%	265	98.5%
Occasionally	0	0.0%	2	1.4%	2	0.7%
Once a week	1	0.8%	0	0.0%	1	0.4%
Papdi/Gathiya						
4-5 times a week	19	14.7%	20	14.3%	39	14.5%
Daily	11	8.5%	12	8.6%	23	8.6%
Never	27	20.9%	37	26.4%	64	23.8%
Occasionally	9	7.0%	8	5.7%	17	6.3%
Once a week	29	22.5%	37	26.4%	66	24.5%
Once in 10 days	16	12.4%	12	8.6%	28	10.4%
Once in 15 days	6	4.7%	5	3.6%	11	4.1%
Once in a month	1	0.8%	2	1.4%	3	1.1%
Thrice a week	11	8.5%	7	5.0%	18	6.7%
Namkeen/ Chavanu						
4-5 times a week	2	1.6%	7	5.0%	9	3.3%
Daily	2	1.6%	1	0.7%	3	1.1%
Never	105	81.4%	113	80.7%	218	81.0%
Occasionally	3	2.3%	5	3.6%	8	3.0%
Once a week	8	6.2%	5	3.6%	13	4.8%
Once in 10 days	2	1.6%	2	1.4%	4	1.5%
Once in 15 days	2	1.6%	4	2.9%	6	2.2%
Once in a month	2	1.6%	0	0.0%	2	0.7%
Thrice a week	3	2.3%	3	2.1%	6	2.2%

Table 4.37 illustrates the frequency of consumption of sugary foods among respondents. Significantly, the ratio of (81.4%) reported never consuming cream rolls, indicating infrequent consumption of these sugary items. While a moderate portion of respondents (33.1%) reported never consuming ice cream, there was still significant consumption, with 33.1% reporting occasional consumption. More than half a percentage (60.2%) of the participants reported consuming cakes or pastries occasionally with notable disparities

among female children (64.3%) having it in more ratio as compared to that of male children (56.4%). And 33.5% of the respondents reported never consuming cakes and pastries. Consumption of homemade sweets was reported with the rate of 26.4%, once a week, followed by 11.9%, 4-5 times a week and 10% once in 10 days. Half of the children (50.2%) never consumed ready-to-eat sweets. And 39.8% of the respondents reported occasional consumption of ready-to-eat sweets. Respondents reported varied consumption of cookies, Khari, or toast, with 52.0% reporting never consuming them and 12.3% consuming them once a week. Chocolates and candies were never consumed by the participants with 28.3%, followed by 13.8% consuming it daily, and 18.6% consuming it 4-5 times a week. The majority of respondents (95.2%) reported never consuming health drinks like Bournvita or Horlicks, indicating limited consumption of these sugary beverages.

TABLE 4. 39: FREQUENCY OF FOODS HIGH IN SUGAR

Category	Female (N=129)		Male (N=140)		Total (N=269)	
	N	%	N	%	N	%
Foods High in Sugar						
Cream roll/Bun						
4-5 times a week	1	0.8%	2	1.4%	3	1.1%
Never	106	82.2%	113	80.7%	219	81.4%
Occasionally	8	6.2%	11	7.9%	19	7.1%
Once a week	5	3.9%	5	3.6%	10	3.7%
Once in 10 days	3	2.3%	2	1.4%	5	1.9%
Once in 15 days	2	1.6%	2	1.4%	4	1.5%
Once in a month	3	2.3%	4	2.9%	7	2.6%
Thrice a week	1	0.8%	1	0.7%	2	0.7%
Ice-cream						
4-5 times a week	5	3.9%	1	0.7%	6	2.2%
Daily	0	0.0%	1	0.7%	1	0.4%
Never	38	29.5%	51	36.4%	89	33.1%
Occasionally	50	38.8%	50	35.7%	100	37.2%
Once a week	8	6.2%	5	3.6%	13	4.8%
Once in 10 days	12	9.3%	7	5.0%	19	7.1%
Once in 15 days	5	3.9%	12	8.6%	17	6.3%
Once in a month	7	5.4%	10	7.1%	17	6.3%

Thrice a week	4	3.1%	3	2.1%	7	2.6%
Cakes / pastry						
4-5 times a week	0	0.0%	1	0.7%	1	0.4%
Never	39	30.2%	51	36.4%	90	33.5%
Occasionally	83	64.3%	79	56.4%	162	60.2%
Once a week	3	2.3%	1	0.7%	4	1.5%
Once in 10 days	2	1.6%	3	2.1%	5	1.9%
Once in 15 days	2	1.6%	1	0.7%	3	1.1%
Once in a month	0	0.0%	3	2.1%	3	1.1%
Thrice a week	0	0.0%	1	0.7%	1	0.4%
Homemade sweets (Sukhdi)						
4-5 times a week	15	11.6%	17	12.1%	32	11.9%
Daily	8	6.2%	9	6.4%	17	6.3%
Never	10	7.8%	12	8.6%	22	8.2%
Occasionally	14	10.9%	12	8.6%	26	9.7%
Once a week	37	28.7%	34	24.3%	71	26.4%
Once in 10 days	10	7.8%	17	12.1%	27	10.0%
Once in 15 days	8	6.2%	4	2.9%	12	4.5%
Once in a month	8	6.2%	8	5.7%	16	5.9%
Thrice a week	19	14.7%	27	19.3%	46	17.1%
Ready to eat sweets (Shrikhand)						
4-5 times a week	0	0.0%	4	2.9%	4	1.5%
Daily	1	0.8%	0	0.0%	1	0.4%
Never	68	52.7%	67	47.9%	135	50.2%
Occasionally	46	35.7%	61	43.6%	107	39.8%
Once a week	1	0.8%	0	0.0%	1	0.4%
Once in 10 days	6	4.7%	5	3.6%	11	4.1%
Once in 15 days	5	3.9%	1	0.7%	6	2.2%
Once in a month	1	0.8%	2	1.4%	3	1.1%
Thrice a week	1	0.8%	0	0.0%	1	0.4%
Cookies/Khari /toast						
4-5 times a week	8	6.2%	8	5.7%	16	5.9%
Daily	6	4.7%	9	6.4%	15	5.6%
Never	67	51.9%	73	52.1%	140	52.0%
Occasionally	8	6.2%	7	5.0%	15	5.6%
Once a week	19	14.7%	14	10.0%	33	12.3%
Once in 10 days	9	7.0%	9	6.4%	18	6.7%

Once in 15 days	5	3.9%	5	3.6%	10	3.7%
Once in a month	1	0.8%	6	4.3%	7	2.6%
Thrice a week	6	4.7%	9	6.4%	15	5.6%
Chocolates, Candies						
4-5 times a week	25	19.4%	25	17.9%	50	18.6%
Daily	18	14.0%	19	13.6%	37	13.8%
Never	37	28.7%	39	27.9%	76	28.3%
Occasionally	11	8.5%	12	8.6%	23	8.6%
Once a week	13	10.1%	19	13.6%	32	11.9%
Once in 10 days	10	7.8%	12	8.6%	22	8.2%
Once in 15 days	4	3.1%	4	2.9%	8	3.0%
Once in a month	4	3.1%	3	2.1%	7	2.6%
Thrice a week	7	5.4%	7	5.0%	14	5.2%
Health drinks (Bournvita, Horlicks)						
4-5 times a week	0	0.0%	1	0.7%	1	0.4%
Daily	1	0.8%	3	2.1%	4	1.5%
Never	123	95.3%	133	95.0%	256	95.2%
Occasionally	1	0.8%	2	1.4%	3	1.1%
Once a week	1	0.8%	1	0.7%	2	0.7%
Once in 15 days	1	0.8%	0	0.0%	1	0.4%
Once in a month	1	0.8%	0	0.0%	1	0.4%
Thrice a week	1	0.8%	0	0.0%	1	0.4%

The data provides a clear picture of the consumption patterns for foods high in salt among females, males, and the total sample. When examining bhungra, the total proportion of individuals who reported never consuming it is the highest, at 51.7%, followed by those who consume it occasionally (10.0%) or once a week (9.7%). The daily consumption of bhungla remains low at 3.7%. Instant soup was not consumed by anyone in the total sample, as 100% reported never consuming it. For sauces, the largest group (68.8%) reported never consuming it, followed by smaller groups who consume it once a week (7.8%) or occasionally (4.1%). Papad had more variation in consumption, with 20.1% of individuals eating it 4-5 times a week, and 45.0% never consuming it. Other frequencies such as once a week and occasionally were reported by 10.8% and 4.1%, respectively. Pickle consumption was minimal, with 91.1% of the total sample reporting that they never

consumed it, while daily consumption was 2.2%, and occasional consumption was only 1.1% (Table 4.40).

TABLE 4. 40: FREQUENCY OF FOODS HIGH IN SALT

Category	Female (N=129)		Male (N=140)		Total (N=269)	
	N	%	N	%	N	%
Foods high in Salt						
Bhungla						
4-5 times a week	13	10.1%	12	8.6%	25	9.3%
Daily	4	3.1%	6	4.3%	10	3.7%
Never	62	48.1%	77	55.0%	139	51.7%
Occasionally	16	12.4%	11	7.9%	27	10.0%
Once a week	12	9.3%	14	10.0%	26	9.7%
Once in 10 days	12	9.3%	7	5.0%	19	7.1%
Once in 15 days	5	3.9%	4	2.9%	9	3.3%
Once in a month	2	1.6%	7	5.0%	9	3.3%
Thrice a week	3	2.3%	2	1.4%	5	1.9%
Instant soup						
Never	129	100.0%	140	100.0%	269	100.0%
Sauces						
4-5 times a week	3	2.3%	8	5.7%	11	4.1%
Daily	2	1.6%	0	0.0%	2	0.7%
Never	91	70.5%	94	67.1%	185	68.8%
Occasionally	5	3.9%	6	4.3%	11	4.1%
Once a week	9	7.0%	12	8.6%	21	7.8%
Once in 10 days	8	6.2%	9	6.4%	17	6.3%
Once in 15 days	4	3.1%	6	4.3%	10	3.7%
Thrice a week	7	5.4%	5	3.6%	12	4.5%
Papad						
4-5 times a week	28	21.7%	26	18.6%	54	20.1%
Daily	6	4.7%	7	5.0%	13	4.8%
Never	57	44.2%	64	45.7%	121	45.0%
Occasionally	7	5.4%	4	2.9%	11	4.1%
Once a week	9	7.0%	20	14.3%	29	10.8%
Once in 10 days	10	7.8%	7	5.0%	17	6.3%

Once in 15 days	3	2.3%	1	0.7%	4	1.5%
Once in a month	2	1.6%	3	2.1%	5	1.9%
Thrice a week	7	5.4%	8	5.7%	15	5.6%
Pickle						
4-5 times a week	0	0.0%	4	2.9%	4	1.5%
Daily	3	2.3%	3	2.1%	6	2.2%
Never	120	93.0%	125	89.3%	245	91.1%
Occasionally	0	0.0%	3	2.1%	3	1.1%
Once a week	2	1.6%	4	2.9%	6	2.2%
Once in 10 days	3	2.3%	0	0.0%	3	1.1%
Once in 15 days	0	0.0%	1	0.7%	1	0.4%
Once in a month	1	0.8%	0	0.0%	1	0.4%

PARENTAL FEEDING STYLES

Table 4.41 highlights the mean scores and standard deviations (SD) of various feeding practice domains followed by mothers of children aged 6-24 months, separated by gender. The mean score shows how frequently mothers reported engaging in child feeding practices in each feeding practice. The overall mean score of milk feeding on demand was 3.22. The mean score for Milk Feeding on Demand was very similar between mothers of female children (3.22) and mothers of male children (3.23). This indicates that mothers, regardless of their child's gender, reported moderately frequent feeding on demand. For Parent-Led Feeding during milk feeding, the mean scores were also close, with 2.17 for mothers of female children and 2.20 for mothers of male children. This suggests that parent-led feeding was reported less frequently than feeding on demand with overall mean of 2.19. The mean scores for Persuasive Feeding during milk feeding were relatively low, with 1.86 for mothers of female children and 1.73 for mothers of male children. This indicates that persuasive feeding was not a common practice. The overall mean was 1.79. The mean scores for Using Food to Calm were 2.4 for mothers of female children and 2.3 for mothers of male children. This suggests that using food to calm children was reported with moderate frequency with the overall mean was 2.4.

A notable difference was observed in Semi-Solids Feeding on Demand. Mothers of male children reported significantly higher mean scores (3.80) compared to mothers of female children (3.52). This indicates that mothers of male children reported higher frequency of

feeding semi-solids on demand. The overall mean was 3.67. This showed a statistically significant difference between these two groups. The average score for the Family Meal Environment was notably high, with mothers of female children scoring 3.86 and mothers of male children scoring 3.69. This reflects a generally positive atmosphere during family meals, resulting in an overall mean score of 3.77. In terms of Parent-Led Feeding during the introduction of semi-solids, the average scores were 2.42 for mothers of female children and 2.57 for mothers of male children. This indicates a moderate occurrence of parent-led feeding practices during this phase, with an overall mean score of 2.50. The average scores for Persuasive Feeding during semi-solid feeding were relatively high, at 2.78 for mothers of female children and 2.81 for mothers of male children. This suggests that persuasive feeding practices were reported with moderate frequency during the introduction of semi-solids, resulting in an overall mean score of 2.80. Most feeding practices exhibited similar average scores between mothers of female and male children, indicating comparable feeding behaviors. However, there was a statistically significant difference in Semi-Solids Feeding on Demand, where mothers of male children reported a notably higher mean score.

TABLE 4. 41: MEAN SCORE OF FPSQ DOMAINS PERCEIVED BY MOTHER GENDERWISE

Category	Female (N=129)		Male (N=140)		Total (N=269)	
	Mean	SD	Mean	SD	Mean	SD
Milk Feeding Version						
Feeding on Demand	3.22	1.36	3.23	1.39	3.22	1.37
Parent-led feeding	2.17	0.86	2.20	0.96	2.19	0.91
Persuasive feeding	1.86	0.71	1.73	0.66	1.79	0.68
Using food to calm	2.4	1.1	2.3	1.0	2.4	1.1
Semi-solids feeding Version						
Feeding on demand	3.52	1.13	3.80	0.97	3.67	1.05
Family Meal Environment	3.86	1.05	3.69	1.19	3.77	1.13
Parent-led feeding	2.42	1.13	2.57	1.16	2.50	1.14
Persuasive feeding	2.78	0.84	2.81	0.79	2.80	0.81
Using Food to calm	1.76	0.99	1.80	0.97	1.78	0.98
Using non-food rewards	1.24	0.58	1.35	0.72	1.30	0.66

Based on the mean scores presented in Table 4.42, mothers of infants aged 12-24 months reported a higher mean (3.30) for Feeding on Demand during milk feeding compared to

mothers of 6–12-month-olds (2.93), with an overall mean of 3.22. Parent-led feeding for milk showed similar means across both groups (6-12 months, 2.26; 12-24 months, 2.17), resulting in a total mean of 2.19. The means for Persuasive feeding during milk feeding were also close (6-12 months: Mean = 1.86; 12-24 months: Mean = 1.78), with a total mean of 1.79. Notably, the mean for Using food to calm during milk feeding was higher for the younger group (Mean = 2.8) compared to the older group (Mean = 2.2), and the total mean was 2.4.

In the context of semi-solid feeding, mothers of younger infants reported a higher mean for Feeding on demand (Mean = 4.00) compared to the older group (Mean = 3.57), with a total mean of 3.67. A substantial difference was observed in the Family Meal Environment, with the older group reporting a much higher mean (Mean = 4.11) than the younger group (Mean = 2.58), and a total mean of 3.77. The mean for Parent-led feeding of semi-solids was higher in the 6–12-month group (Mean = 2.87) compared to the 12–24-month group (Mean = 2.39), with a total mean of 2.50. Means for Persuasive feeding of semi-solids was similar across the age groups (6-12 months: Mean = 2.66; 12-24 months: Mean = 2.84), with a total mean of 2.80. The mean for Using Food to calm with semi-solids was slightly higher in the older group (Mean = 1.85) compared to the younger group (Mean = 1.51), resulting in a total mean of 1.78. Finally, the mean for Using non-food rewards was also slightly higher for the 12–24-month group (Mean = 1.37) compared to the 6–12-month group (Mean = 1.05), and the total mean was 1.30.

TABLE 4. 42: MEAN SCORE OF FPSQ DOMAINS PERCEIVED BY MOTHER AGEWISE

Category	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)	
	Mean	SD	Mean	SD	Mean	SD
Milk Feeding Version						
Feeding on Demand	2.93	1.40	3.30	1.36	3.22	1.37
Parent-led feeding	2.26	0.98	2.17	0.89	2.19	0.91
Persuasive feeding	1.86	0.65	1.78	0.69	1.79	0.68
Using food to calm	2.8	1.0	2.2	1.1	2.4	1.1
Semi-solids feeding Version						
Feeding on demand	4.00	0.96	3.57	1.06	3.67	1.05
Family Meal Environment	2.58	1.23	4.11	0.84	3.77	1.13
Parent-led feeding	2.87	1.18	2.39	1.11	2.50	1.14

Persuasive feeding	2.66	0.83	2.84	.80	2.80	0.81
Using Food to calm	1.51	0.80	1.85	1.01	1.78	0.98
Using non-food rewards	1.05	0.22	1.37	0.72	1.30	0.66

Table 4.43 provides insights into the mean scores and standard deviations (SD) of various feeding practice domains followed by fathers of children aged 6-24 months, separated by gender. Consistently, the mean scores reported by fathers for both their male and female children are quite similar across the different milk-feeding domains. For "Feeding on Demand," the mean score is identical (3.13) for both male and female children, resulting in the same total mean. Additionally, in "Parent-led feeding," the means are also very close, with a slightly higher mean reported for male children (2.46) compared to female children (2.41), leading to a total mean of 2.44. Furthermore, for "Persuasive feeding," fathers reported a slightly higher mean for their female children (1.71) compared to their male children (1.55), with a total mean of 1.62. More interestingly, in the domain of "Using food to calm," fathers indicated a higher mean score for their female children (2.20) compared to their male children (2.01), resulting in a total mean of 2.10. This suggests that fathers perceive themselves as slightly more likely to use food to calm their daughters during milk feeding compared to their sons.

Regarding the semi-solids feeding version, there are also some notable patterns in fathers' perceptions based on the child's gender. For "Feeding on demand," fathers reported a slightly higher mean for their male children (2.98) compared to their female children (2.88), with a total mean of 2.93. Moreover, in the "Family Meal Environment" domain, fathers perceived a somewhat higher mean for their female children (3.18) compared to their male children (3.04), resulting in a total mean of 3.11. Additionally, for "Persuasive feeding" during semi-solid feeding, fathers reported a higher mean for their female children (2.44) compared to their male children (2.35), with a total mean of 2.39. Notably, for "Using Food to Calm" during semi-solid feeding, the mean scores are identical for both male and female children (1.83), yielding the same total mean. Finally, in the case of "Using non-food rewards," fathers reported a slightly higher mean for their female children (1.54) compared to their male children (1.48), with a total mean of 1.51.

TABLE 4. 43: MEAN SCORE OF FPSQ DOMAINS PERCEIVED BY FATHER GENDERWISE

Category	Female (N=129)		Male (N=140)		Total (N=269)	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Milk Feeding Version						
Feeding on Demand	3.13	0.92	3.13	0.88	3.13	0.90
Parent-led feeding	2.41	0.76	2.46	0.75	2.44	0.76
Persuasive feeding	1.71	1.04	1.55	0.93	1.62	0.99
Using food to calm	2.20	1.11	2.01	1.05	2.10	1.08
Semi-solids feeding Version						
Feeding on demand	2.88	1.04	2.98	1.10	2.93	1.07
Family Meal Environment	3.18	1.36	3.04	1.43	3.11	1.40
Parent-led feeding	2.39	1.04	2.36	0.99	2.37	1.01
Persuasive feeding	2.44	1.05	2.35	1.09	2.39	1.07
Using Food to calm	1.83	1.07	1.83	1.14	1.83	1.11
Using non-food rewards	1.54_a	0.87	1.48_a	0.84	1.51	0.85

Table 4.44 reflects fathers' perceptions of child feeding practices categorized by the child's age (6-12 months and 12-24 months).

Regarding the milk-feeding version, fathers of children aged 12-24 months consistently reported slightly higher mean scores in certain feeding domains compared to fathers of children aged 6-12 months. Specifically, for Feeding on Demand, the mean score is higher for the 12-24 months age group (3.17) compared to the 6-12 months group (3.00), resulting in a total mean of 3.13. Furthermore, in Parent-led feeding, the means are remarkably similar between the two age groups (2.45 vs. 2.44), with a total mean of 2.44. Additionally, for "Persuasive feeding," fathers of children aged 6-12 months reported a slightly higher mean (1.67) compared to those with children aged 12-24 months (1.61), with a total mean of 1.62. More significantly, a notable difference is observed in Using food to calm, where fathers of younger infants (6-12 months) reported a considerably higher mean (2.45) compared to fathers of older infants (12-24 months) who reported a mean of 2.01, leading to a total mean of 2.10. This suggests that fathers might be more inclined to use food to calm younger infants during milk feeding.

In the context of the semi-solids feeding version, the patterns of means across the two age groups show more distinct variations. For Feeding on demand, fathers of younger infants

(6-12 months) reported a significantly higher mean (3.15) compared to fathers of older infants (12-24 months) who reported a mean of 2.87, with a total mean of 2.93. However, for the "Family Meal Environment," fathers of children aged 12-24 months reported a substantially higher mean (3.29) compared to those with children aged 6-12 months (2.44), resulting in a total mean of 3.11. Additionally, in Parent-led feeding during semi-solid feeding, fathers of younger infants reported a slightly higher mean (2.48) compared to fathers of older infants (2.34), with a total mean of 2.37. For Persuasive feeding, the means are very similar between the two age groups (2.40 vs. 2.39), with a total mean of 2.39. Moreover, regarding Using Food to calm during semi-solid feeding, fathers of older infants (12-24 months) reported a slightly higher mean (1.86) compared to fathers of younger infants (1.73), with a total mean of 1.83. Finally, for Using non-food rewards, fathers of older infants (12-24 months) reported a slightly higher mean (1.52) compared to fathers of younger infants (1.47), resulting in a total mean of 1.51.

TABLE 4. 44: MEAN SCORE OF FPSQ DOMAINS PERCEIVED BY FATHER AGEWISE

Category	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Milk Feeding Version						
Feeding on Demand	3.00	1.04	3.17	.85	3.13	0.90
Parent-led feeding	2.45	0.84	2.44	.73	2.44	0.76
Persuasive feeding	1.67	0.95	1.61	1.00	1.62	0.99
Using food to calm	2.45	1.12	2.01	1.05	2.10	1.08
Semi-solids feeding Version						
Feeding on demand	3.15	1.02	2.87	1.08	2.93	1.07
Family Meal Environment	2.44	1.25	3.29	1.38	3.11	1.40
Parent-led feeding	2.48	1.00	2.34	1.01	2.37	1.01
Persuasive feeding	2.40	1.07	2.39	1.07	2.39	1.07
Using Food to calm	1.73	0.99	1.86	1.14	1.83	1.11
Using non-food rewards	1.47	0.87	1.52	0.85	1.51	0.85

Table 4.45 presents the mean scores of demandingness and responsiveness as perceived by mothers and fathers, categorized by the gender of the child (female and male). Regarding maternal demandingness and responsiveness, the data indicates a high degree of similarity in the perceptions of mothers and fathers based on the child's gender. For Mother

Demandingness, the mean score reported by mothers of female children (2.37) is very close to that reported by mothers of male children (2.41), resulting in a total mean of 2.39. This suggests that mothers exhibit a consistent level of demandingness towards both their sons and daughters, as perceived by themselves. Furthermore, for Mother Responsiveness, the mean scores are identical for mothers of female children and mothers of male children (both 1.27), leading to a total mean of 1.27. This consistency further emphasizes that mothers perceive their level of responsiveness to be the same, regardless of the child's gender.

In terms of paternal demandingness and responsiveness, there are slight variations in the mean scores based on the child's gender, as perceived by fathers. For Father Demandingness, fathers of female children reported a slightly higher mean (2.29) compared to fathers of male children (2.24), with a total mean of 2.26. This suggests that fathers might perceive themselves as being marginally more demanding towards their daughters. Additionally, for Father Responsiveness, fathers of male children reported a somewhat higher mean (1.52) compared to fathers of female children (1.41), resulting in a total mean of 1.47. This indicates that fathers perceive themselves as being slightly more responsive to their sons compared to their daughters.

TABLE 4. 45: MEAN SCORES OF DEMANDINGNESS AND RESPONSIVENESS BY THE MOTHER AND FATHER GENDERWISE

Category	Female (N=129)		Male (N=140)		Total (N=269)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Mother Demandingness	2.37	0.37	2.41	0.35	2.39	0.36
Mother Responsiveness	1.27	0.26	1.27	0.28	1.27	0.27
Father Demandingness	2.29	0.64	2.24	0.68	2.26	0.66
Father Responsiveness	1.41	0.62	1.52	0.64	1.47	0.63

Table 4.46 illustrates the mean scores of demandingness and responsiveness as perceived by mothers and fathers, categorized by the child's age (6-12 months and 12-24 months).

Regarding maternal demandingness and responsiveness across the two age groups, mothers of older infants (12-24 months) consistently reported a higher mean score for demandingness compared to mothers of younger infants (6-12 months). Specifically, the

mean for Mother Demandingness is 2.42 for the 12-24 months group, while it is 2.29 for the 6-12 months group, resulting in a total mean of 2.39. This suggests that mothers perceive themselves as being more demanding towards their children as they move into the 12–24-month age range. Furthermore, for Mother Responsiveness, the mean score reported by mothers of younger infants (1.31) is slightly higher than that of mothers of older infants (1.26), with a total mean of 1.27. This indicates that mothers might perceive themselves as being slightly more responsive to their younger infants compared to their older infants.

In terms of paternal demandingness and responsiveness across the two age groups, the mean scores are remarkably similar. For Father Demandingness, the mean score for fathers of younger infants (2.24) is nearly identical to that of fathers of older infants (2.26), resulting in a total mean of 2.26. This consistency suggests that fathers perceive their level of demandingness to be quite stable across these two infant age groups. Additionally, for Father Responsiveness, the mean scores are also very close, with fathers of younger infants reporting a mean of 1.46 and fathers of older infants reporting a mean of 1.47, leading to a total mean of 1.47. This further emphasizes the consistent perception of paternal responsiveness across the 6-12-month and 12–24-month age ranges.

TABLE 4. 46: MEAN SCORES OF DEMANDINGNESS AND RESPONSIVENESS BY THE MOTHER AND FATHER AGEWISE

Category	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Mother Demandingness	2.29	0.29	2.42	0.37	2.39	0.36
Mother Responsiveness	1.31	0.26	1.26	0.28	1.27	0.27
Father Demandingness	2.24	0.62	2.26	0.68	2.26	0.66
Father Responsiveness	1.46	0.60	1.47	0.64	1.47	0.63

Table 4.47 shows the data based on the frequencies and percentages of mothers and fathers categorized into high and low demandingness and responsiveness, by the gender of the child. With regards to maternal demandingness, the distribution of mothers into high and low-demandingness categories is remarkably similar for both female and male children. Notably, 50.4% of mothers of female children are categorized as having high

demandingness, while 51.4% of mothers of male children fall into the same category. Similarly, the percentages for low demandingness are also close, with 49.6% for mothers of female children and 48.6% for mothers of male children. Furthermore, the chi-square test reveals a p-value of 0.865, which is not statistically significant ($p > 0.05$). This indicates that there is no statistically significant association between the child's gender and the mother's level of demandingness.

In terms of maternal responsiveness, the distribution of mothers into high and low responsiveness categories shows a slight difference based on the child's gender, although it is not statistically significant. Specifically, 48.1% of mothers of female children are categorized as having high responsiveness, compared to 52.9% of mothers of male children. Conversely, 51.9% of mothers of female children are categorized as having low responsiveness, while 47.1% of mothers of male children fall into this category. Additionally, the chi-square test yields a p-value of 0.432, which is not statistically significant ($p > 0.05$). Therefore, there is no statistically significant association between the child's gender and the mother's level of responsiveness.

Concerning paternal demandingness, the categorization of fathers into high and low demandingness is also quite similar for both female and male children. Notably, 51.2% of fathers of female children are categorized as having high demandingness, while 49.3% of fathers of male children fall into the same category. Similarly, 48.8% of fathers of female children are categorized as having low demandingness, compared to 50.7% of fathers of male children. Furthermore, the chi-square test results in a p-value of 0.758, which is not statistically significant ($p > 0.05$). This indicates that there is no statistically significant association between the child's gender and the father's level of demandingness.

Regarding paternal responsiveness, there is a more noticeable difference in the distribution of fathers into high and low responsiveness categories based on the child's gender, although it does not reach statistical significance. Specifically, 45.7% of fathers of female children are categorized as having high responsiveness, compared to 53.6% of fathers of male children. Conversely, 54.3% of fathers of female children are categorized as having low responsiveness, while 46.4% of fathers of male children fall into this category. Additionally, the chi-square test yields a p-value of 0.199, which is not statistically significant ($p > 0.05$). Therefore, despite the observed percentage differences, there is no statistically significant

association between the child's gender and the father's level of responsiveness in this sample.

TABLE 4. 47: DEMANDINGNESS AND RESPONSIVENESS CATEGORIES OF MOTHER AND FATHER BY GENDER

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Mother Demandingness							
High demandingness	65	50.4%	72	51.4%	137	50.9%	0.029 (0.865)
Low demandingness	64	49.6%	68	48.6%	132	49.1%	
Mother Responsiveness							
High responsiveness	62	48.1%	74	52.9%	136	50.6%	0.618 (0.432)
Low responsiveness	67	51.9%	66	47.1%	133	49.4%	
Father Demandingness							
High demandingness	66	51.2%	69	49.3%	135	50.2%	0.095 (0.758)
Low demandingness	63	48.8%	71	50.7%	134	49.8%	
Father Responsiveness							
High responsiveness	59	45.7%	75	53.6%	134	49.8%	1.649 (0.199)
Low responsiveness	70	54.3%	65	46.4%	135	50.2%	

This data 4.48 emphasizes frequencies and percentages of mothers and fathers categorized into high and low demandingness and responsiveness, by the age of the child (6-12 months and 12-24 months). The data on maternal demandingness across the age groups highlights that there is a notable difference in the distribution of mothers into high and low-demandingness categories. Significantly, a lower percentage of mothers of younger infants (6-12 months) are categorized as having high demandingness (39.0%) compared to mothers of older infants (12-24 months), where a higher percentage falls into the high demandingness category (54.3%). Conversely, a higher percentage of mothers of younger infants are categorized as having low demandingness (61.0%) compared to mothers of older infants (45.7%). Furthermore, the chi-square test reveals a statistically significant association ($p = 0.038^*$) between the child's age and the mother's level of demandingness, indicating that maternal demandingness tends to be higher for children in the 12–24-month age group.

In terms of maternal responsiveness across the two age groups, there is a difference in the percentages of mothers categorized as having high and low responsiveness, although this difference is not statistically significant. Specifically, a higher percentage of mothers of younger infants (59.3%) are categorized as having high responsiveness compared to mothers of older infants (48.1%). Conversely, a lower percentage of mothers of younger infants (40.7%) are categorized as having low responsiveness compared to mothers of older infants (51.9%). Additionally, the chi-square test yields a p-value of 0.128, which is not statistically significant ($p > 0.05$). Therefore, while there is a trend, there is no statistically significant association between the child's age and the mother's level of responsiveness in this sample.

In association with paternal demandingness across the two groups, the distribution of fathers into high and low-demandingness categories is remarkably similar. Notably, 50.8% of fathers of younger infants (6-12 months) are categorized as having high demandingness, which is very close to the 50.0% of fathers of older infants (12-24 months) in the same category. Similarly, the percentages for low demandingness are also very close (49.2% vs. 50.0%). Furthermore, the chi-square test results in a p-value of 0.908, which is not statistically significant ($p > 0.05$). This indicates that there is no statistically significant association between the child's age and the father's level of demandingness.

With regard to paternal demandingness, the distribution of fathers into high and low-demandingness categories is remarkably similar. Notably, 50.8% of fathers of younger infants (6-12 months) are categorized as having high demandingness, which is very close to the 50.0% of fathers of older infants (12-24 months) in the same category. Similarly, the percentages for low demandingness are also very close (49.2% vs. 50.0%). Furthermore, the chi-square test results in a p-value of 0.908, which is not statistically significant ($p > 0.05$). This indicates that there is no statistically significant association between the child's age and the father's level of demandingness.

Regarding paternal responsiveness across the two age groups, the distribution of fathers into high and low responsiveness categories shows minimal difference. Specifically, 47.5% of fathers of younger infants (6-12 months) are categorized as having high responsiveness, compared to 50.5% of fathers of older infants (12-24 months). Conversely, 52.5% of fathers of younger infants are categorized as having low responsiveness, compared to 49.5% of fathers of older infants. Additionally, the chi-square test yields a p-value of 0.682, which is

not statistically significant (p > 0.05). Therefore, there is no statistically significant association between the child's age and the father's level of responsiveness in this sample.

TABLE 4. 48: DEMANDINGNESS AND RESPONSIVENESS CATEGORIES OF MOTHER AND FATHER BY AGE

Category	6–12 months (N=59)		12-24 months (N=210)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Mother Demandingness							
High demandingness	23	39.0%	114	54.3%	137	50.9%	4.316(0.038*)
Low demandingness	36	61.0%	96	45.7%	132	49.1%	
Mother Responsiveness							
High responsiveness	35	59.3%	101	48.1%	136	50.6%	2.322 (0.128)
Low responsiveness	24	40.7%	109	51.9%	133	49.4%	
Father Demandingness							
High demandingness	30	50.8%	105	50.0%	135	50.2%	0.013 (0.908)
Low demandingness	29	49.2%	105	50.0%	134	49.8%	
Father Responsiveness							
High responsiveness	28	47.5%	106	50.5%	134	49.8%	0.168 (0.682)
Low responsiveness	31	52.5%	104	49.5%	135	50.2%	

(p< 0.05*)

Based on the high and low categories of demandingness and responsiveness of mother and father, various parental feeding styles are assessed. Table 4.49 shares insights into various parental feeding styles followed by parents, according to gender. The data on Mother's feeding styles shows that the distribution across the four categories is relatively similar for both female and male children**.** Notably, the most prevalent feeding style reported by mothers overall is Authoritarian, representing 32% of the total sample, with 34% for female children and 30% for male children. Similarly, the Indulgent feeding style is also common, accounting for 32% of the total, with 32% for female children and 31.4% for male children. Furthermore, the percentages for the Authoritative feeding style are lower, representing 19.0% of the total (16.3% for females and 21.4% for males). The Uninvolved feeding style is reported by 17.5% of the total (17.8% for females and 17.1% for males). Additionally, the chi-square test gives a p-value of 0.726, which is not statistically significant (p > 0.05). This indicates that there is no statistically significant association between the child's gender and the mother's reported feeding style.

In examining paternal feeding styles, the distribution across the categories reveals some differences compared to mothers, but no statistically significant association with the child's gender. Notably, the most frequent feeding style reported by fathers overall is Authoritarian, accounting for 42% of the total, with a slightly higher percentage for female children (44.2%) compared to male children (40%). Similarly, the Indulgent feeding style is also prominent, representing 41.6% of the total, with a slightly higher percentage for male children (44.3%) compared to female children (38.8%). Furthermore, the Authoritative feeding style is less common among fathers, representing 8.2% of the total (7.0% for females and 9.3% for males). The Uninvolved feeding style is reported by 8.2% of the total, with a slightly higher percentage for female children (10.1%) compared to male children (6.4%).

TABLE 4. 49: PARENTAL FEEDING STYLES ACCORDING TO GENDER

Category	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Mother Feeding Style							
Authoritarian Feeding Style	44	34.1%	42	30.0%	86	32.0%	1.314 (0.726)
Authoritative Feeding Style	21	16.3%	30	21.4%	51	19.0%	
Indulgent Feeding Style	41	31.8%	44	31.4%	85	31.6%	
Uninvolved Feeding Style	23	17.8%	24	17.1%	47	17.5%	
Father Feeding Style							
Authoritarian Feeding Style	57	44.2%	56	40.0%	113	42.0%	2.303 (0.512)
Authoritative Feeding Style	9	7.0%	13	9.3%	22	8.2%	
Indulgent Feeding Style	50	38.8%	62	44.3%	112	41.6%	
Uninvolved Feeding Style	13	10.1%	9	6.4%	22	8.2%	

Table 4.50 shares the data on various parental feeding styles followed by parents, according to age. In the matter of mother's feeding style, there are notable differences in the distribution across the categories. Notably, the Authoritarian feeding style is reported by a

lower percentage of mothers of younger infants (6-12 months) at 20.3%, compared to mothers of older infants (12-24 months) at 35.2%. The overall percentage for the Authoritarian style is 32.0%. Furthermore, the Indulgent feeding style is more prevalent among mothers of younger infants (40.7%) compared to mothers of older infants (29.0%), with an overall percentage of 31.6%. The Authoritative feeding style is reported by 18.6% of mothers of younger infants and 19.0% of mothers of older infants, with an overall percentage of 19.0%. Additionally, the Uninvolved feeding style is reported by 20.3% of mothers of younger infants and 16.7% of mothers of older infants, with an overall percentage of 17.5%. The chi-square test yields a p-value of 0.137, which is not statistically significant ($p > 0.05$), indicating that while there are percentage differences, there is no statistically significant association between the child's age and the mother's reported feeding style in this study.

In connection with the paternal feeding styles across the age groups, the distribution across the categories is quite similar. Notably, the Authoritarian feeding style is reported by 44.1% of fathers of younger infants (6-12 months) and 41.4% of fathers of older infants (12-24 months), with an overall percentage of 42.0%. Furthermore, the Indulgent feeding style is reported by 40.7% of fathers of younger infants and 41.9% of fathers of older infants, with an overall percentage of 41.6%. The Authoritative feeding style is reported by 6.8% of fathers of younger infants and 8.6% of fathers of older infants, with an overall percentage of 8.2%. Additionally, the Uninvolved feeding style is reported by 8.5% of fathers of younger infants and 8.1% of fathers of older infants, with an overall percentage of 8.2%. The chi-square test results in a p-value of 0.963, which is not statistically significant ($p > 0.05$). Therefore, there is no statistically significant association between the child's age and the father's reported feeding style in this study.

TABLE 4. 50: PARENTAL FEEDING STYLES ACCORDING TO AGE

Category	6–12 months (N=59)		12-24 months (N=210)		Total (N=269)		Chi-square (p-value)
	N	%	N	%	N	%	
Mother Feeding Style							
Authoritarian Feeding Style	12	20.3%	74	35.2%	86	32.0%	
Authoritative Feeding Style	11	18.6%	40	19.0%	51	19.0%	5.529 (0.137)

Indulgent Feeding Style	24	40.7%	61	29.0%	85	31.6%	
Uninvolved Feeding Style	12	20.3%	35	16.7%	47	17.5%	
Father Feeding Style							
Authoritarian Feeding Style	26	44.1%	87	41.4%	113	42.0%	0.282 (0.963)
Authoritative Feeding Style	4	6.8%	18	8.6%	22	8.2%	
Indulgent Feeding Style	24	40.7%	88	41.9%	112	41.6%	
Uninvolved Feeding Style	5	8.5%	17	8.1%	22	8.2%	

Table 4.51 depicts the mean anthropometric measurements and mean Z scores of anthropometric indicators gender-wise. The result examined the weight, height, and growth indicators of children, categorized by gender. Male children displayed significantly greater weight and height compared to female children. However, gender did not significantly affect weight-for-age, height-for-age, or weight-for-height growth indicators. Overall, the children in this study showed lower average weight and height relative to expected norms for their age, suggesting potential growth limitations. The variation in weight and height measurements was similar across both genders.

TABLE 4. 51: MEAN ANTHROPOMETRIC MEASUREMENTS AND MEAN Z-SCORES OF ANTHROPOMETRIC INDICATORS GENDERWISE

Age	Mean	SD	T-test
Weight(kg)			
Female	8.45	1.37	3.926 (0.000***)
Male	9.13	1.45	
Total	8.81	1.45	
Height(cm)			
Female	74.4	5.4	2.734 (0.007)
Male	76.2	5.5	
Total	75.3	5.5	
WAZ			
Female	1.18	1.02	0.516 (0.607)
Male	1.25	1.16	
Total	1.22	1.09	
HAZ			
Female	1.18	1.17	0.951 (0.343)

Male	1.31	1.13	
Total	1.25	1.15	
WHZ			
Female	0.79	1.03	0.329 (0.742)
Male	0.83	1.35	
Total	0.81	1.21	

(p< 0.001*)**

Table 4.52 illustrates the mean anthropometric measurements and mean Z scores of anthropometric indicators age-wise. This study compared the weight, height, and growth indicators of children in two age groups: 6-12 months and 12-24 months. Older children (12-24 months) exhibited significantly greater height and weight than younger children (6-12 months). However, no significant differences were found between the age groups in their weight-for-age, height-for-age, or weight-for-height growth indicators. Both age groups demonstrated average growth indicators suggesting lower-than-expected weight and height for their age. The variability in height and weight measurements was comparable between the two age groups.

TABLE 4. 52: MEAN ANTHROPOMETRIC MEASUREMENTS AND MEAN Z SCORES OF ANTHROPOMETRIC INDICATORS AGEWISE

Age	Mean	SD	T-test
Weight(kg)			
6 - 12 months	7.65	1.19	7.651 (0.000***)
12-24 months	9.13	1.35	
Total	8.81	1.45	
Height(cm)			
6 - 12 months	69.0	3.8	12.634 (0.000***)
12-24 months	77.1	4.5	
Total	75.3	5.5	
WAZ			
6 - 12 months	1.05	1.13	1.327 (0.186)
12-24 months	1.26	1.08	
Total	1.22	1.09	
HAZ			
6 - 12 months	0.94	1.08	2.336 (0.20)
12-24 months	1.33	1.15	
Total	1.25	1.15	

WHZ			
6 - 12 months	0.67	1.20	1.021 (0.308)
12-24 months	0.85	1.21	
Total	0.81	1.21	

(p< 0.001*)**

Table 4.53 illustrated the nutritional status of children aged 6-24 months, separated by gender. The data showed the percentage of underweight (low weight for height), stunting (low height for age), and wasting (low weight for height). Most of the children had normal weight (78.1%). A smaller percentage of children were underweight (16.4%), with a very small portion having severe underweight (5.6%). There was no significant difference in underweight between males and females. Similarly, the majority of children had normal height for their age (75.8%). Stunting, indicating poor growth, was present in 16.7% of the children, with 7.4% having severe stunting. No significant difference in stunting was observed between males and females. The majority of children showed normal weight for their height (78.4%). Wasting, affected 11.5% of the children, with 3.0 % experiencing severe wasting. A small number of children were classified as overweight or at risk of overweight. Importantly, there was a statistically significant difference in wasting between males and females (p = 0.008). Specifically, a higher percentage of males experienced wasting compared to females.

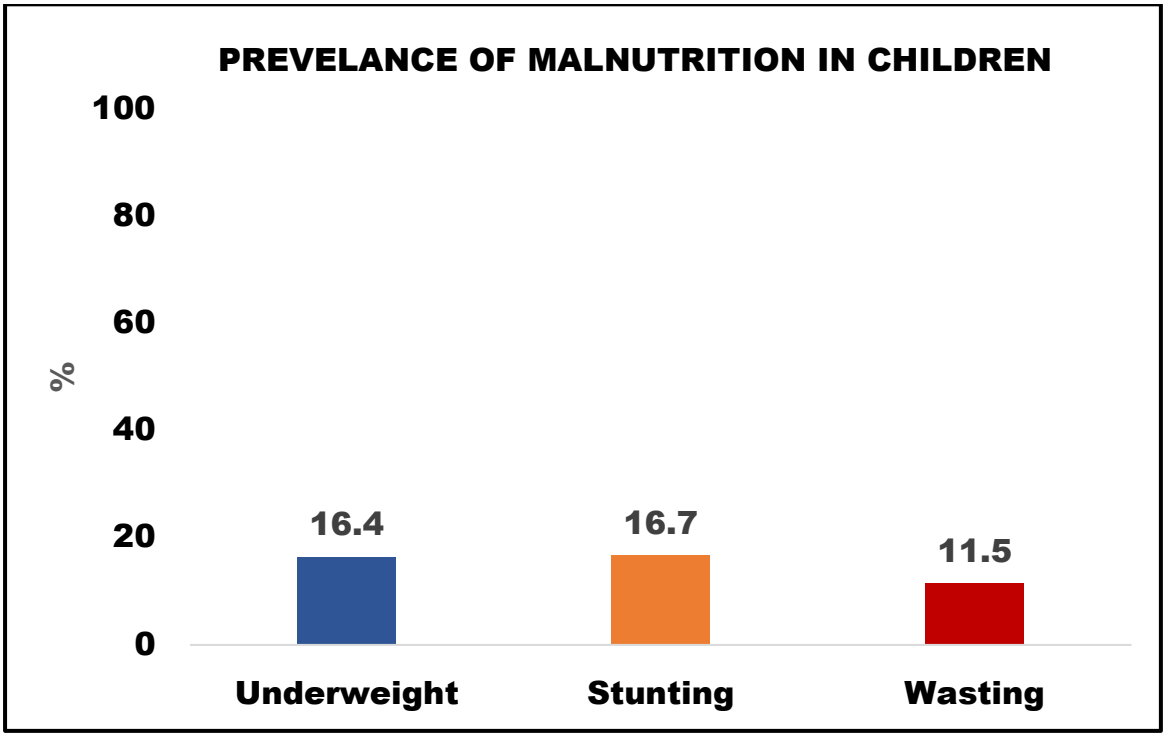
TABLE 4. 53: NUTRITIONAL STATUS OF CHILDREN AGED 6-24 MONTHS GENDERWISE

Indicator	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (P value)
	N	%	N	%	N	%	
Underweight Category							
Normal	103	79.8%	107	76.4%	210	78.1%	1.150 (0.563)
Severe underweight	8	6.2%	7	5.0%	15	5.6%	
Underweight	18	14.0%	26	18.6%	44	16.4%	
Stunting Category							
Normal	102	79.1%	102	72.9%	204	75.8%	

Severe stunting	8	6.2%	12	8.6%	20	7.4%	1.441 (0.486)
Stunting	19	14.7%	26	18.6%	45	16.7%	
Wasting category							
Normal	112	86.8%	99	70.7%	211	78.4%	15.557 (0.008**)
Obesity	1	0.8%	0	0.0%	1	0.4%	
Overweight	0	0.0%	3	2.1%	3	1.1%	
Possible risk of overweight	2	1.6%	13	9.3%	15	5.6%	
Severe Wasting	3	2.3%	5	3.6%	8	3.0%	
Wasting	11	8.5%	20	14.3%	31	11.5%	

(p <0.01)**

FIGURE 4. 4: PREVELANCE OF MALNUTRITION IN CHILDREN



(Table 4.54) depicts the nutritional status of children aged 6-24 months, separated by age categories of the children. The majority of children in both age groups had normal weight (76.3% in the 6–12-month age group and 78.6% in the 12–24-month age group). Underweight was observed in 16.4% of the total children, with 5.6% experiencing severe

underweight. There was no statistically significant difference in underweight between the two age groups (p = 0.858). Normal height for age was more common in the younger age group (84.7%) compared to the older age group (73.3%). Stunting, indicating poor linear growth, was more prevalent in the 12–24-month-old children, (18.6%) than in the 6–12-month children (10.2%). Severe stunting was observed in 7.4% of the total children. However, this difference between age groups was not statistically significant. A higher percentage of children in both age groups showed normal weight for height (81.4% in the 6–12-month-olds and 77.6% in the 12–24-month-olds). Wasting, indicating acute malnutrition, was more prevalent in children 12–24 months old at 12.9% compared to the children of 6-12 months of age at 6.8%. Severe wasting was observed in 3.0% of the total sample. A small percentage of children were classified as overweight or at risk of being overweight (5.6% total). Again, the differences in wasting between age groups were not statistically significant (p = 0.805).

FIGURE 4. 5: PREVALENCE OF MALNUTRITION IN CHILDREN BY AGE

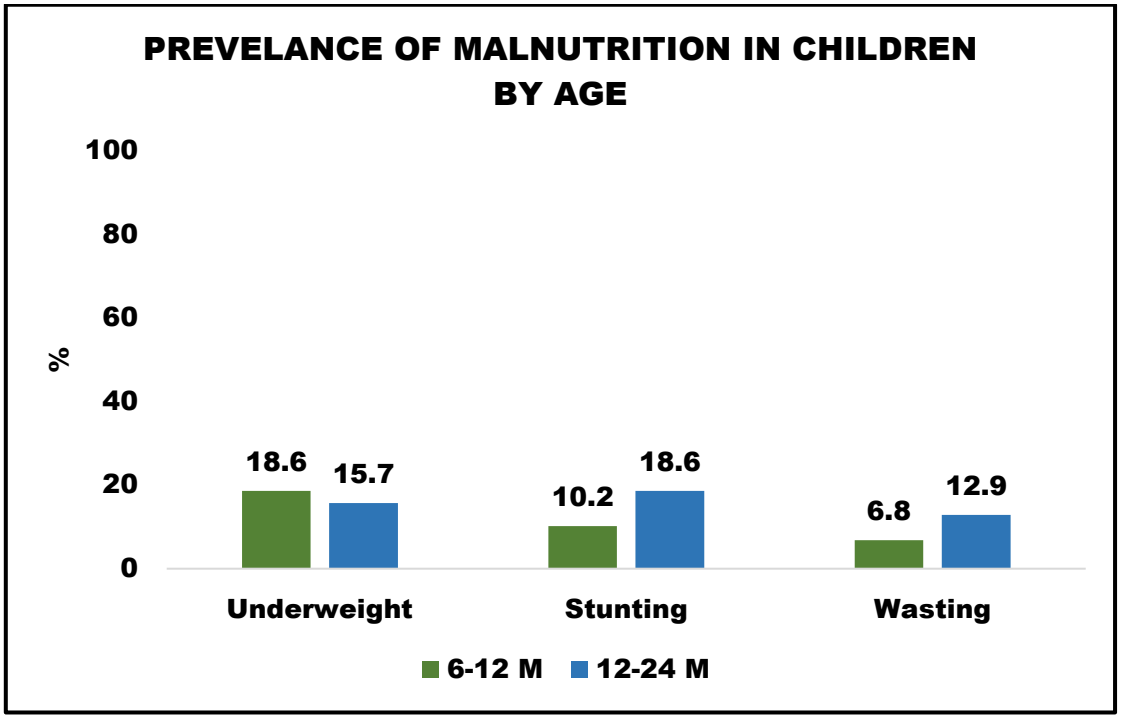


TABLE 4. 54: NUTRITIONAL STATUS OF CHILDREN AGED 6-24 MONTHS AGEWISE

Indicator	6 - 12 months (N=59)		12-24 months (N=210)		Total (N=269)		Chi-square (P value)
	N	%	N	%	N	%	
Underweight Category							
Normal	45	76.3%	165	78.6%	210	78.1%	0.306 (0.858)
Severe underweight	3	5.1%	12	5.7%	15	5.6%	
Underweight	11	18.6%	33	15.7%	44	16.4%	
Stunting Category							
Normal	50	84.7%	154	73.3%	204	75.8%	3.296 (0.192)
Severe stunting	3	5.1%	17	8.1%	20	7.4%	
Stunting	6	10.2%	39	18.6%	45	16.7%	
Wasting category							
Normal	48	81.4%	163	77.6%	211	78.4%	2.307(0.805)
Obesity	0	0.0%	1	0.5%	1	0.4%	
Overweight	1	1.7%	2	1.0%	3	1.1%	
Possible risk of overweight	4	6.8%	11	5.2%	15	5.6%	
Severe Wasting	2	3.4%	6	2.9%	8	3.0%	
Wasting	4	6.8%	27	12.9%	31	11.5%	

Table 4.55 shows the severity of malnutrition (underweight, stunting, and wasting) among children aged 6-24 months, separated by gender. Over one-third of the children were underweight (37.2%). The prevalence of mild, moderate, and severe underweight was 36.4%, 14.0%, and 6.2% among females, and 37.9%, 18.6%, and 5.0% among males, respectively. No significant difference was observed in the prevalence of underweight between male and female children. Overall, 35.3% of the children were stunted. Among females, 38.8% had mild stunting, 14.7% had moderate stunting, and 6.2% had severe stunting. For males, the corresponding percentages were 32.1%, 18.6%, and 8.6%. There was no statistically significant difference in the prevalence of stunting between the genders.

A significant difference was found in the severity of wasting between male and female children (p = 0.004). Among females, 27.9% experienced mild wasting, 8.5% had moderate wasting, and 2.3% had severe wasting. In contrast, males showed higher rates of wasting, with 31.4% having mild wasting, 14.3% having moderate wasting, and 3.6% having severe wasting. Notably, a higher percentage of males (9.3%) were identified as having a possible risk of overweight compared to females (1.6%).

TABLE 4. 55: SEVERITY OF MALNUTRITION AMONG CHILDREN 6-24 MONTHS GENDERWISE

Indicator	Female (N=129)		Male (N=140)		Total (N=269)		Chi-square (P value)
	N	%	N	%	N	%	
Underweight Severity							
Mild Underweight	47	36.4%	53	37.9%	100	37.2%	1.470 (0.689)
Moderate underweight	18	14.0%	26	18.6%	44	16.4%	
Normal	56	43.4%	54	38.6%	110	40.9%	
Severe Underweight	8	6.2%	7	5.0%	15	5.6%	
Stunting severity							
Mild stunting	50	38.8%	45	32.1%	95	35.3%	1.935 (0.586)
Moderate stunting	19	14.7%	26	18.6%	45	16.7%	
Normal	52	40.3%	57	40.7%	109	40.5%	
Severe stunting	8	6.2%	12	8.6%	20	7.4%	
Wasting severity							
Mild wasting	36	27.9%	44	31.4%	80	29.7%	18.928 (0.004*)
Moderate Wasting	11	8.5%	20	14.3%	31	11.5%	
Normal	76	58.9%	55	39.3%	131	48.7%	
Obesity	1	0.8%	0	0.0%	1	0.4%	
Overweight	0	0.0%	3	2.1%	3	1.1%	

Possible risk of overweight	2	1.6%	13	9.3%	15	5.6%	
Severe Wasting	3	2.3%	5	3.6%	8	3.0%	

Table 4.56 presents the severity of malnutrition among children aged 6-24 months, categorized by age distribution. Among children aged 6-12 months, 23.7% had mild underweight, 18.6% had moderate underweight, and 5.1% had severe underweight. In the 12-24 months age group, the prevalence was 41.0% for mild, 15.7% for moderate, and 5.7% for severe underweight. No significant difference in the prevalence of underweight was observed between the two age groups. For stunting, in the 6-12 months group, 30.5% had mild stunting, 10.2% had moderate stunting, and 5.1% had severe stunting. Among children aged 12-24 months, 36.7% had mild stunting, 18.6% had moderate stunting, and 8.1% had severe stunting. The difference in stunting prevalence between the age groups was not statistically significant. The prevalence of mild wasting was 33.9% in the younger age group and 28.6% in the older age group. Moderate wasting was observed in 6.8% of children aged 6-12 months and 12.9% of those aged 12-24 months. The prevalence of severe wasting was 0% in the younger group and 0.5% in the older group. There was no significant difference in the severity of wasting between the two age groups.

TABLE 4. 56: SEVERITY OF MALNUTRITION AMONG CHILDREN 6-24 MONTHS AGE WISE

Indicator	**6 - 12 months (N=59)**		**12-24 months (N=210)**		**Total (N=269)**		**Chi-square (P value)**
	N	**%**	**N**	**%**	**N**	**%**	
Underweight Severity							
Mild Underweight	14	23.7%	86	41.0%	100	37.2%	6.458 (0.091)
Moderate underweight	11	18.6%	33	15.7%	44	16.4%	
Normal	31	52.5%	79	37.6%	110	40.9%	
Severe Underweight	3	5.1%	12	5.7%	15	5.6%	
Stunting severity							

Mild stunting	18	30.5%	77	36.7%	95	35.3%	6.509 (0.089)
Moderate stunting	6	10.2%	39	18.6%	45	16.7%	
Normal	32	54.2%	77	36.7%	109	40.5%	
Severe stunting	3	5.1%	17	8.1%	20	7.4%	
Wasting severity							
Mild wasting	20	33.9%	60	28.6%	80	29.7%	2.689 (0.847)
Moderate Wasting	4	6.8%	27	12.9%	31	11.5%	
Normal	28	47.5%	103	49.0%	131	48.7%	
Obesity	0	0.0%	1	0.5%	1	0.4%	
Overweight	1	1.7%	2	1.0%	3	1.1%	

Impact of Feeding Style among Underweight Children

When examining underweight status among children based on their mothers' feeding styles, it is evident that most children fall within the normal weight category. The highest proportions of normal-weight children are found among those whose mothers adopt Authoritarian (81.4%), Authoritative (82.4%), and Uninvolved (80.9%) feeding styles. In contrast, the percentage is somewhat lower for children with Indulgent mothers, at 70.6%. Additionally, the prevalence of underweight—encompassing both severe underweight and underweight—is most pronounced in children whose mothers have an Indulgent feeding style (23.5%), followed by those with Authoritative (13.7%), Uninvolved (14.9%), and Authoritarian (11.6%) styles. However, a chi-square test assessing underweight status reveals a p-value of 0.453, indicating no statistically significant correlation between maternal feeding style and underweight in this study ($p > 0.05$) (Table 4.57).

Stunting in Children

In terms of stunting, the majority of children across various maternal feeding styles are classified as non-stunted (normal). The highest percentage of non-stunted children is observed among those whose mothers practice an Indulgent feeding style (78.8%), followed by Authoritarian (77.9%), Authoritative (74.5%), and Uninvolved (68.1%) styles. Conversely, the prevalence of stunting—covering both severe stunting and stunting—is greatest among children with Uninvolved mothers (25.5%), followed by Authoritative (17.6%), Authoritarian (15.1%), and Indulgent (12.9%) styles. Nevertheless, the chi-square

test for stunting shows a p-value of 0.707, which does not indicate statistical significance ($p > 0.05$), suggesting no meaningful association between maternal feeding style and stunting within this study.

Wasting in Children

Regarding wasting among children in relation to maternal feeding styles, a statistically significant association has been identified. The highest percentage of children maintaining a normal weight status concerning wasting is found among those whose mothers follow Authoritarian (88.4%) and Uninvolved (87.2%) feeding styles, while this figure drops significantly for children with Authoritative (62.7%) and Indulgent (72.9%) mothers. Furthermore, the prevalence of wasting—including severe wasting—is notably higher among children with Authoritative (15.7%) and Indulgent (16.5%) feeding styles compared to those with Authoritarian (9.3%) and Uninvolved (6.4%) styles. The chi-square test for wasting—considering both severe wasting and general wasting categories along with overweight/obesity risk—yields a statistically significant p-value of 0.013 ($p < 0.05$). This indicates a significant relationship between maternal feeding style and children's nutritional status concerning wasting, highlighting that Authoritative and Indulgent feeding styles are linked to a higher prevalence of wasting compared to Authoritarian and Uninvolved styles in this study.

TABLE 4. 57: NUTRITIONAL STATUS OF CHILDREN IN RELATION WITH THE MOTHER'S FEEDING STYLE

Indicators	Authoritarian Feeding Style		Authoritative Feeding Style		Indulgent Feeding Style		Uninvolved Feeding Style		Chi-square (p-value)
	N	%	N	%	N	%	N	%	
Underweight									
Normal	70	81.4%	42	82.4%	60	70.6%	38	80.9%	5.739 (0.453)
Severe Underweight	6	7.0%	2	3.9%	5	5.9%	2	4.3%	
Underweight	10	11.6%	7	13.7%	20	23.5%	7	14.9%	
Stunting									
Normal	67	77.9%	38	74.5%	67	78.8%	32	68.1%	

Severe stunting	6	7.0%	4	7.8%	7	8.2%	3	6.4%	3.777 (0.707)
Stunting	13	15.1%	9	17.6%	11	12.9%	12	25.5%	
Wasting									
Normal	76	88.4%	32	62.7%	62	72.9%	41	87.2%	29.595 (0.013)
Obesity	1	1.2%	0	0.0%	0	0.0%	0	0.0%	
Overweight	0	0.0%	0	0.0%	2	2.4%	1	2.1%	
Possible risk of overweight	1	1.2%	8	15.7%	4	4.7%	2	4.3%	
Severe Wasting	2	2.3%	3	5.9%	3	3.5%	0	0.0%	
Wasting	6	7.0%	8	15.7%	14	16.5%	3	6.4%	

FIGURE 4. 6: NUTRITIONAL STATUS OF CHILDREN IN RELATION WITH MOTHERS FEEDING STYLE

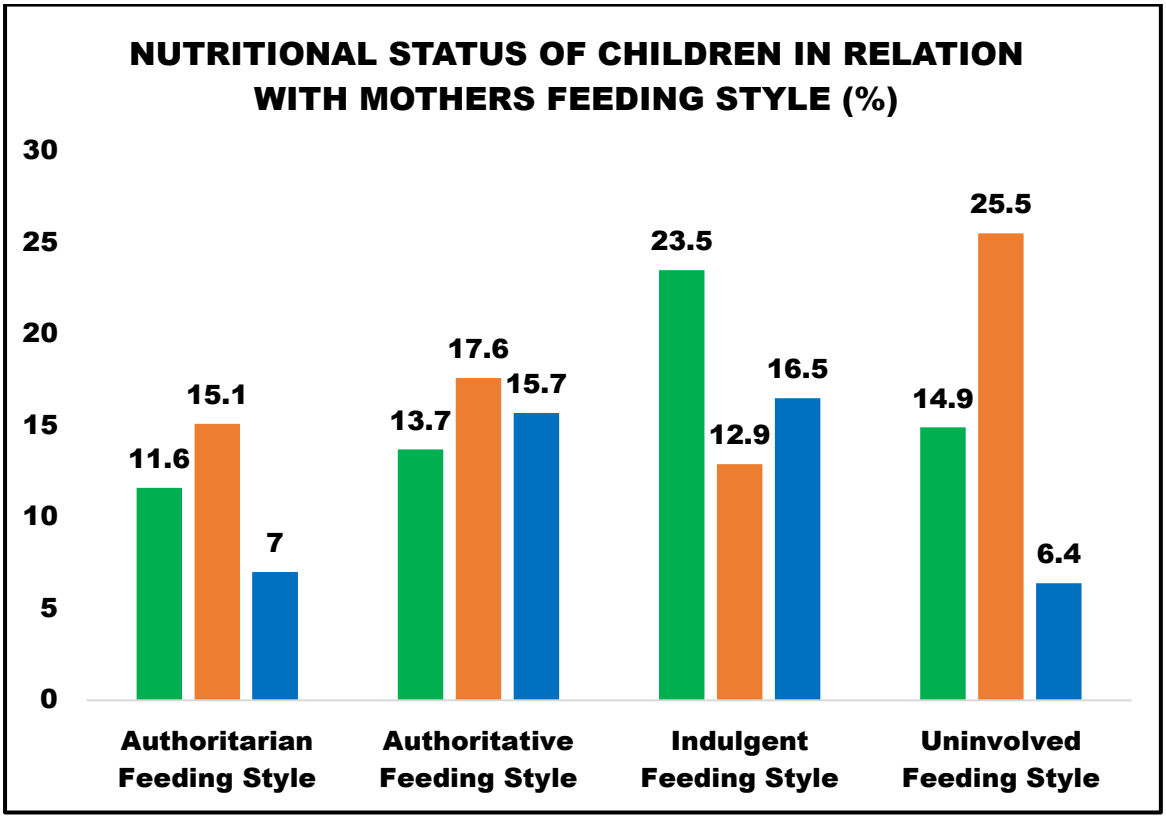


Table 4.58 represents the data on the nutritional status of children (Underweight, Stunting, Wasting) with the father's feeding style (Authoritarian, Authoritative, Indulgent, Uninvolved).

Underweight in Children

In terms of underweight status among children related to their fathers' feeding styles, most children are classified as having a normal weight. The highest percentage of normal-weight children is found among those with fathers who adopt an Authoritative feeding style (90.9%), followed by those with Authoritarian (80.5%), Uninvolved (77.3%), and Indulgent (73.2%) styles. Additionally, the prevalence of underweight—encompassing both severe underweight and underweight—is greatest among children whose fathers practice an Indulgent feeding style (22.3%), followed by Uninvolved (18.2%), Authoritarian (19.5%), and Authoritative (4.5%) styles. However, the chi-square test for underweight reveals a p-value of 0.309, indicating no statistical significance ($p > 0.05$) and suggesting no meaningful association between paternal feeding style and underweight in this study.

Stunting in Children

When examining stunting in children concerning their fathers' feeding styles, the majority are classified as non-stunted (normal). The highest proportion of non-stunted children is observed among those whose fathers have an Uninvolved feeding style (86.4%), followed by Authoritarian (77.9%), Indulgent (73.2%), and Authoritative (68.2%) styles. Conversely, the prevalence of stunting—including both severe stunting and stunting—is highest among children with Authoritative fathers (27.3%), followed closely by those with Indulgent (26.8%), Authoritarian (22.1%), and Uninvolved (13.6%) fathers. Nevertheless, the chi-square test for stunting indicates a p-value of 0.675, which is not statistically significant ($p > 0.05$), suggesting no significant association between paternal feeding style and stunting within this study.

Wasting in Children

Regarding wasting among children in relation to their fathers' feeding styles, most children are categorized as having a normal weight status. The highest percentage of normal-weight children concerning wasting is found among those whose fathers have an Authoritative feeding style (90.9%), followed by Uninvolved (81.8%), Indulgent (77.7%), and Authoritarian (76.1%) styles. Furthermore, the prevalence of wasting—including severe

wasting—appears to be highest among children with Indulgent fathers (15.2%) and Authoritarian fathers (15.9%), followed by Uninvolved (13.6%) and Authoritative (4.5%) styles. Additionally, the chi-square test for wasting—which considers severe wasting, general wasting, overweight, obesity, and potential risk of overweight—yields a p-value of 0.824, indicating no statistical significance ($p > 0.05$). Thus, there is no significant association between paternal feeding style and children's nutritional status regarding wasting in this study.

FIGURE 4. 7: NUTRITIONAL STATUS OF CHILDREN IN RELATION WITH FATHERS FEEDING STYLES

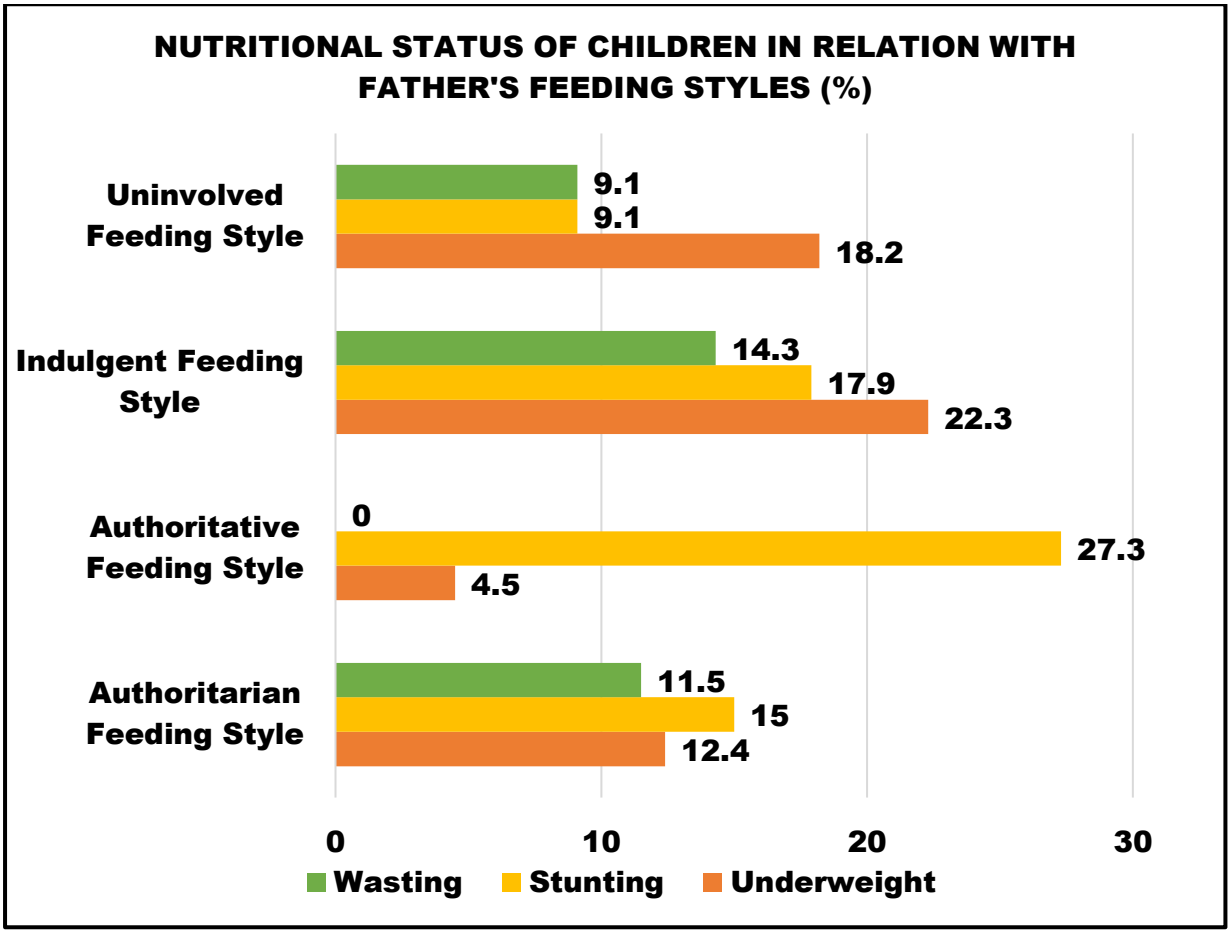


Table 4. 58: NUTRITIONAL STATUS OF CHILDREN IN RELATION WITH THE FATHER'S FEEDING STYLE

Indicators	Authoritarian Feeding Style		Authoritative Feeding Style		Indulgent Feeding Style		Uninvolved Feeding Style		Chi-square (p-value)
	N	%	N	%	N	%	N	%	
Underweight									
Normal	91	80.5%	20	90.9%	82	73.2%	17	77.3%	7.127 (0.309)
Severe Underweight	8	7.1%	1	4.5%	5	4.5%	1	4.5%	
Underweight	14	12.4%	1	4.5%	25	22.3%	4	18.2%	
Stunting									
Normal	88	77.9%	15	68.2%	82	73.2%	19	86.4%	4.011 (0.675)
Severe stunting	8	7.1%	1	4.5%	10	8.9%	1	4.5%	
Stunting	17	15.0%	6	27.3%	20	17.9%	2	9.1%	
Wasting									
Normal	86	76.1%	20	90.9%	87	77.7%	18	81.8%	9.928 (0.824)
Obesity	0	0.0%	0	0.0%	1	0.9%	0	0.0%	
Overweight	1	0.9%	0	0.0%	2	1.8%	0	0.0%	
Possible risk of overweight	8	7.1%	1	4.5%	5	4.5%	1	4.5%	
Severe Wasting	5	4.4%	1	4.5%	1	0.9%	1	4.5%	
Wasting	13	11.5%	0	0.0%	16	14.3%	2	9.1%	

DISCUSSIONS

Infant and young child feeding (IYCF) practices, encompassing the timely introduction of safe and nutritious complementary foods alongside continued breastfeeding, directly impact a child's nutritional status. Consequently, parental feeding styles emerge as a critical determinant in shaping children's nutritional intake and overall well-being during this crucial period. These styles, encompassing authoritative, authoritarian, indulgent, and uninvolved approaches, are defined by varying levels of responsiveness and demand, each exerting distinct effects on children's eating behaviors and health outcomes. Therefore, understanding the importance of these parental feeding styles, in conjunction with IYCF practices, is essential for developing effective strategies to promote healthy dietary patterns and prevent nutritional deficiencies in early childhood.

The findings of the present study revealed that a predominantly Hindu (99.3%) followed by Scheduled Tribe (46.5%) and OBC (42.8%) population were residing in large joint families (84%) with 5-8 members (68%) in each household. Mothers typically were high school educated (30.1%) but unemployed (87.7%), and fathers, were mainly plant operators (41.3%). Economic constraints were evident, with most households in the upper lower (46.8%) and lower middle (36.4%) of Kuppuswamy categories. While sanitation was adequate (99.3% toilet facilities), economic vulnerability and specific sociocultural factors, like joint family structures and parental age range 20-30 years for mothers and fathers 30-40 years. The demographic characteristics of the present study mirrored those reported in other studies within tribal regions of India (Mishra et al., 2021; Patel & Shah, 2020; Singh & Kumar, 2019), which also document a high prevalence of joint family structures, limited maternal employment lower socioeconomic status, and constrained household incomes.

Encouragingly, the study revealed generally positive hygiene practices among caregivers. Almost all respondents reported washing hands before (95.9%) and after (100%) cooking, and a large majority practiced handwashing before (93.3%) and after (99.6%) feeding their children. Additionally, nearly all (99%) washed hands after cleaning the child’s faeces. The majority (93.3%) of the participants were not storing complementary foods.

Knowledge, Attitude and Practices revealed that both parents generally understood core complementary feeding principles, with a majority recognizing initiation after 6 months

(mothers 81.4%, fathers 82.5%) and appropriate food consistency. However, mothers exhibited greater awareness of diverse food groups and age-appropriate feeding practices, including promoting self-feeding and verbal interaction during meals. Mothers were also more involved in meal preparation (98.9%) and direct feeding (99.6% vs. 58.0% fathers), while fathers primarily handled food procurement (82.9%). Fathers used mobile phones more during feeding (34.6% vs. 21.2% of mothers). Mothers participated more in nutrition education programs (25.3% vs. 7.4% fathers), suggesting disparities in access to education. Overall, mothers demonstrated higher direct involvement and knowledge in complementary feeding practices.

The study examined the involvement of mothers, fathers, grandparents, and other family members in various support domains related to children's food and feeding. The findings revealed a clear division of labor. Fathers predominantly held financial responsibility, with 98.1%, overwhelmingly reporting both spending money on and purchasing food for children. Mothers were the primary food preparers (97.4%) and taught self-feeding (78.8%) and handwashing (45.7%). Fathers were more likely to give feeding advice (32.3%). Fathers, however, were more inclined to provide advice related to feeding times. Furthermore, grandparents significantly (75.5%) contributed to supporting mothers by assisting with household chores, thereby enabling mothers to focus on food preparation.

The study revealed suboptimal IYCF practices. Notably, only 17% of children received early initiation of breastfeeding, with a significant 38.7% receiving it after two days. While a high percentage of children were currently breastfed (82.2%), exclusive breastfeeding under six months was low at 25.7%. Bottle feeding was also prevalent (30.1%). Continued breastfeeding among children aged 12-24 months was significantly higher (79%). Complementary foods were predominantly introduced after six months (85.9%), aligning with WHO recommendations. However, the frequency of feeding complementary foods varied, with 47.2% receiving four meals daily, slightly over half (52.8%) consuming approximately half a cup per feeding, and most (79.9%) receiving medium-consistency foods. Feeding times were primarily 15 to 30 minutes.

This study revealed concerning patterns of dietary diversity and ultra-processed food consumption among children aged 6-24 months. While cereal consumption was high (92.6%), particularly among females (96.1%), and pulses were consumed by 82.5% of children, the intake of other essential food groups like dairy (9.7%), eggs (9.3%), and

vitamin A-rich fruits and vegetables (4.5-5.9%) was alarmingly low. Flesh food consumption was also minimal (10%). Consequently, a significant proportion of children consumed only three (23%) or four (30.1%) food groups, with only 29% meeting the Minimum Dietary Diversity (MDD) criteria.

Older children (12-24 months) exhibited better dietary diversity than younger children (6-12 months), consuming significantly more cereals, whole grains, pulses, flesh foods, and vegetables. However, they also had a higher intake of ultra-processed foods, including baked sweets (75.2%), other sweets (45.7%), and packaged salty snacks (34.8%), compared to younger children. Notably, sweet beverage consumption (64.8%), sweet foods (82.4%), and Savory/fried snacks (37.1%) were also substantially higher in older children. Alarmingly, 79.9% of children reported zero vegetable or fruit consumption.

These results align with findings from studies in other tribal or resource-limited settings. For example, a study by Singh et al. (2020) in a tribal population in Madhya Pradesh, India, reported similarly low consumption of fruits, vegetables, and animal-source foods, alongside a concerningly high intake of processed foods. Their study revealed that the food diversity was poor and the intake of ultra-processed food was high among the children (Singh et al., 2020).

This study identified a high frequency of unhealthy food consumption in children. Daily biscuit intake (49.4%, especially males) and regular consumption of bread/buns and sev-mamra were noted. Frequent intake of high-fat foods (sev 31.6% weekly, chips 13.8% weekly), high-sugar foods (cakes/pastries 60.2% occasionally, chocolates/candies 32.4% daily/weekly), and high-salt foods (papad, 20.1% weekly) were observed, indicating a concerning reliance on ultra-processed, high-fat, high-sugar, and high-salt items in children's diets.

This study analysed parental feeding styles and their correlation with the child's nutritional status. Mothers predominantly employed Authoritarian (32%) and Indulgent (32%) feeding styles. Similar findings were found in the study conducted by (Fontanezi et al., 2024) on the association between parental feeding styles and feeding difficulties, where the indulgent style was the most common at 40%, followed by the authoritarian feeding style with 23.7% among the mothers. Notably, the use of Authoritarian styles increased significantly with child age, rising from 20.3% in 6–12-month-old children to 35.2% in 12–24-month-old children. A significant association was found between maternal feeding styles and child

wasting, where both Authoritative and Indulgent styles were linked to a higher prevalence of wasting. This suggests that high demandingness combined with high responsiveness (Authoritative) or low demandingness with high responsiveness (Indulgent) in maternal feeding may negatively affect a child's weight-for-height ratio.

Fathers, in contrast, consistently exhibited Authoritarian (42%) and Indulgent (41.6%) feeding styles across all age groups, with no observed significant association between paternal feeding styles and child underweight, stunting, or wasting. While fathers reported slight variations in their perceived demandingness towards daughters and responsiveness towards sons, these variations did not translate into significant differences in child nutritional outcomes.

This study revealed significant nutritional challenges among children aged 6-24 months, overall with 16.7% of children were affected from stunting (7.4% severe) and 11.5% wasting.The prevalence of Underweight was 16.4%, and only about 6% were overweight or at risk. Younger children (6-12 months) exhibited higher stunting (18.6%) and wasting (10.2%) than the older children. Older children (12-24) were more wasted (12.9%) than the younger children (6.8%).

SUMMARY AND CONCLUSIONS

Complementary feeding practices are crucial for children under two years of age as they play a significant role in ensuring optimal growth and development. During this critical period, infants transition from exclusive breastfeeding to the introduction of solid foods, which provides essential nutrients that breast milk alone may not supply. Proper complementary feeding helps to prevent malnutrition, supports cognitive development, and enhances the immune system, thereby reducing the risk of infections. Furthermore, establishing healthy eating habits early on can influence dietary preferences and behaviors later in life, promoting long-term health and well-being. So therefore, Parental feeding styles play a crucial role in shaping the dietary habits and overall health of children under two years old. Understanding these styles is essential for promoting healthy growth and preventing obesity and other nutritional issues during this critical developmental period (Lo et al., 2015).

Parental feeding styles significantly influence children's eating behaviors, nutritional status, and long-term health outcomes. These styles are broadly categorized into authoritative, authoritarian, indulgent, and uninvolved approaches, each characterized by varying levels of responsiveness and demand.

Demographic Profile and Socio-economic Characteristic

- Majority of the participants were Hindu (99.3%) and only 0.7% of them were Muslims.
- Caste of the respondents were Scheduled Tribe (46.5%) with a significant proportion, followed by Other Backward Classes (OBC) with 42.8%, General (4.8%) and Scheduled Caste (5.9%)
- The majority of families were joint families (84%), with nuclear families comprising a smaller proportion (14.5%) and extended families being the least common (1.5%).
- Only 16% of them having agriculture, 2.2% house/shop rent as any other source of income.

- Majority of the households were falling under the Kuppuswamy category of Upper Lower Class with the ratio of 46.8%, followed by lower middle class at 36.4%, and upper middle class with 15.2%.
- Majority of the mother's age was falling under the age category of 20-30 years, with the ratio of 69.5%, followed by 30-40 years (27.5%).
- The maximum percentage of age of father was between 30-40 years, followed by 20-30 years with 29.7%.
- Higher proportion of mothers were qualified till high school with 30.1%, followed by graduated (19.3%), middle school (18.6%), primary schooling (14.9%), and profession or honours (14.1%).
- Similarly, the majority of fathers were qualified till high school with 30.9%, followed by graduated (19.7%), Primary schooling (17.8%), middle school (13%), and profession or honours (6.3%).
- Higher percentage of mothers were unemployed with the ratio of 87.7%.
- The occupation of father contributed larger, employing as plant and machine operators and assemblers with the ratio of 41.3%, followed by 24.5% of skilled workers and market and sales workers, 8.9% of craft and related trade workers, and only 5.9% of them were working as technicians and associate professional.
- More than half of the respondents were having first child, with the proportion of 55%, and 41.6% of the children were the second children.
- Almost all the respondents reported, washing their hands before (95.9%) and after (100%) cooking, before (93.3%) and after (99.6%) feeding the child, respectively.
- About 99% of the respondents were washing hands after cleaning the child's faeces.
- A significant portion (93.3%) of respondents highlighted that they do not store complementary foods; however, only 6.7% of them stored complementary foods for 2-3 hours.
- Majority (78%) of the children ranged from the age of 12 to 24 months, followed by 22% of children from 6-12 months of age group.

Knowledge, Attitude and Practises of Parents on child feeding behaviours and Complementary feeding of children aged 6-24 months:

- A large majority of both mothers (81.4%) and fathers (82.5%) recognized that complementary feeding should begin after 6 months of age.
- Approximately 70% of both mothers and fathers understood that liquid or semi-solid foods were appropriate for 7-month-old infants.
- A significant portion of both mothers (55.4%) and fathers (53.9%) believed self-feeding should start after 1 year of age, with a greater percentage of fathers (23.4%) than mothers (13.8%) believing it should start after 2 years.
- Mothers identified snacks as important more frequently (84.8%) than fathers (49.1%).
- A high percentage of both mothers (91.1%) and fathers (82.2%) understood the importance of continued breastfeeding alongside complementary feeding.
- Mothers generally exhibited greater awareness of diverse food groups for children than fathers.
- Mothers demonstrated higher awareness and adherence to age-appropriate feeding behaviors, such as cup use (mothers:37.9%, fathers: 25.3%), promoting self-feeding at 10 months (mothers: 71.7%, fathers: 48.0%), and emphasizing verbal interaction during meals (mothers: 95.9%, fathers: 72.5%).
- Fathers were more involved in food purchasing (82.9%) compared to mothers (52.4%), while mothers were predominantly responsible for meal preparation (98.9%) and direct child feeding (99.6%).
- Fathers used mobile phones while feeding more frequently (34.6%) than mothers (21.2%).
- Mothers were significantly more likely to participate in formal nutrition education programs (25.3%) than fathers (7.4%).

Support Domains for Children

- Fathers overwhelmingly reported spending money on children's food (98.1%) and purchasing it (89.2%).
- Mothers were heavily involved in purchasing food (78.4%) but less so in spending the money (32.3%).

- Mothers predominantly prepared food for children (97.4%).
- Fathers were more likely to give advice or reminders about feeding times (32.3%), though most reported not doing so.
- Mothers primarily taught children self-feeding (78.8%) and washed their hands before meals (45.7%).
- Grandparents were the primary source of support for mothers in household chores (75.5%).

IYCF Practices:

- Only 17% of the children received early initiation of breastfeeding.
- Early initiation practices were similar between genders: 17.8% of female children and 16.4% of male children were breastfed immediately, indicating no significant gender influence.
- A high percentage of children were currently breastfed (82.2%), with similar ratios between female (81.4%) and male (82.9%) children, showing no significant gender difference.
- Bottle feeding was reported in 30.1% of children, with similar ratios between female (31.8%) and male (28.6%) children.
- However, the ratio of children exclusively breastfed under six months was significantly lower, at 25.7%, with similar ratios between female (27.1%) and male (24.3%) children.
- Among children aged 12-24 months, a high percentage continued breastfeeding (61.7%), with similar ratios between female (78.3%) and male (79.6%) children within this age range.
- A significant proportion (85.9%) of the parents introduced to complementary foods after six months of age.
- About 47.2% of the children were fed complementary foods, four times a day.
- A significant proportion (79.9%) of children were receiving complementary foods with medium consistency, followed by 12.3% receiving thick consistency, and 7.8% receiving thin consistency.
- Half of the respondents took time of 15 minutes to feed complementary foods to the children, followed by 37.2% of them taken time of 30 minutes.

DIETARY DIVERSITY:

- 92.6% of children consumed cereals, with females at 96.1% and males at 89.3%. 85.5% consumed whole grains, with females at 89.9% and males at 81.4%.
- Only 4.1% consumed millets, 11.9% nuts and oilseeds, 9.7% dairy, 9.3% eggs, and 10% flesh foods.
- Older children (12-24 months) showed significantly higher consumption of cereals (96.7% vs. 78.0%), whole grains (91.0% vs. 66.1%), pulses (85.7% vs. 71.2%), and vegetables, compared to younger children (6-12 months).
- Approximately 30% of children consumed at least four food groups. Only 29.0% met the Minimum Dietary Diversity (MDD) criteria, and 28.6% met the Minimum Acceptable Diet (MAD) criteria. Meal frequency (MMF) was high at 91.8%. Younger children had very low MDD and MAD rates of 11.9%.
- Gender had minimal influence on dietary diversity, except for cereal and whole grain consumption.
- 59.5% of children consumed sweet beverages, with 64.8% of older children consuming them. 79.9% of children consumed sweet foods.
- 74.0% consumed baked sweets. 37.9% consumed other sweets. 29.0% consumed packaged salty snacks. Older children had higher consumption of these items. 84.0% of children consumed unhealthy foods.
- A large percentage of children had zero vegetable or fruit consumption (79.9%).
- 96.7% reported never consuming infant formula, and 90.3% never consumed cerelacs.
- 49.4% consumed biscuits daily, with a higher rate among males (55%).
- 31.6% consumed sev once a week. 13.8% consumed chips and Kurkure once a week. 60.2% consumed cakes or pastries occasionally. 13.8% consumed chocolates or candies daily. 20.1% consumed papad 4-5 times a week.

PARENTAL FEEDING STYLES:

- Mothers reported the highest mean score of 3.86 for Family Meal Environment when feeding female children, indicating a strong positive atmosphere during family meals.
- Conversely, the lowest mean score reported by mothers was 1.73 for Persuasive Feeding during milk feeding of male children, suggesting that mothers rarely employed persuasive feeding techniques in this context.
- A notable statistically significant difference emerged in Semi-Solids Feeding on Demand, where mothers of male children reported a significantly higher mean of 3.80 compared to mothers of female children, who reported a mean of 3.52 suggesting a gender-based difference in how semi-solid foods were provided on demand.
- Fathers reported the highest mean score of 3.13 for Feeding on Demand during milk feeding, with identical means for both male and female children, indicating a consistent approach regardless of the child's gender.
- The lowest mean score reported by fathers was 1.48 for using non-food rewards with male children, showing that this method was the least common feeding practice.
- Fathers reported higher mean scores for female children in Persuasive feeding and using food to calm during both milk and semi-solid feeding, suggesting a trend where fathers may use these methods more often with their daughters.
- Mothers reported the highest mean score of 4.11 for Family Meal Environment when feeding children aged 12-24 months, indicating a perceived increase in positive mealtime experiences, as children grow older.
- Conversely, the lowest mean score reported by mothers was 1.05 for using non-food rewards when feeding children aged 6-12 months, suggesting this practice was least common in younger infants.
- Mothers of younger infants, aged 6-12 months, reported higher mean scores for both Feeding on demand and Parent-led feeding of semi-solids compared to mothers of older infants, indicating a potential shift in feeding approaches as children transition to solid foods.

- Fathers significantly use food to calm younger infants (6-12 months) more (mean = 2.45) than older infants (12-24 months) (mean = 2.01), indicating a shift in calming strategies.
- Demand feeding of semi-solids is significantly higher for younger infants (6-12 months) (mean = 3.15) compared to older infants (12-24 months) (mean = 2.87), suggesting a decrease in this practice as children age.
- Fathers perceive a substantially more positive family meal environment for older infants (12-24 months) (mean = 3.29) compared to younger infants (6-12 months) (mean = 2.44).
- Parent-led feeding and persuasive feeding practices show relatively consistent mean scores across both age groups, indicating stable fatherly approaches.
- Mothers reported nearly identical levels of demandingness and responsiveness regardless of their child's gender, as evidenced by very close mean scores for Mother Demandingness (2.37 for female children and 2.41 for male children) and identical mean scores for Mother Responsiveness (1.27 for both female and male children). This indicates that mothers perceive their parenting style as gender-neutral in these aspects.
- Fathers perceived themselves as slightly more demanding towards female children (mean 2.29) and slightly more responsive towards male children (mean 1.52). This suggests that fathers might exhibit subtle differences in their parenting approaches based on the child's gender, even if these differences are relatively small.
- Mothers reported a higher mean demandingness score for older infants (12-24 months) (mean = 2.42) compared to younger infants (6-12 months) (mean = 2.29), indicating that mothers perceive themselves as becoming more demanding as their children age.
- Mothers reported a slightly higher mean responsiveness score for younger infants (mean = 1.31) compared to older infants (mean = 1.26), suggesting a perceived slight decrease in responsiveness as children age.
- Fathers reported remarkably similar mean scores for both demandingness and responsiveness across the two age groups. Father Demandingness means were 2.24 for younger infants and 2.26 for older infants, while Father Responsiveness means were 1.46 and 1.47, respectively. This indicates that fathers perceive their parenting

styles as relatively consistent in demandingness and responsiveness regardless of the child's age within the 6–24-month range.

- Mothers perceive their levels of demandingness and responsiveness as nearly identical across both male and female children.
- Maternal demandingness significantly increases as children age, while paternal demandingness and responsiveness remain relatively stable across the 6–24-month age range.
- Mothers predominantly report using Authoritarian (32% overall) and Indulgent (32% overall) feeding styles, indicating a tendency towards either high demandingness with low responsiveness (Authoritarian) or low demandingness with high responsiveness (Indulgent).
- Mothers less frequently report Authoritative (high demandingness, high responsiveness) and Uninvolved (low demandingness, low responsiveness) feeding styles. The Authoritative style is reported by 19% of mothers. The Uninvolved style is reported by 17.5% of mothers
- There are observable percentage differences in the reported feeding styles of mothers of younger infants (6-12 months) compared to mothers of older infants (12-24 months).
- Mothers of younger infants report a significantly lower percentage (20.3%) of the Authoritarian style compared to mothers of older infants (35.2%). This suggests a trend of increased demandingness and decreased responsiveness as children age.
- The Indulgent feeding style is more prevalent among mothers of younger infants (40.7%) than older infants (29.0%), indicating a potential tendency for increased permissiveness with younger children.
- The percentages for Authoritative and Uninvolved feeding styles remain relatively consistent across both age groups, with Authoritative styles ranging from 18.6% for younger infants to 19.0% for older infants, and Uninvolved styles ranging from 20.3% for younger infants to 16.7% for older infants.
- Similar to mothers, fathers predominantly report using Authoritarian (42% overall) and Indulgent (41.6% overall) feeding styles. Fathers exhibit a higher overall percentage of Authoritarian feeding styles compared to mothers.
- The percentages across all four feeding styles are very close between mothers and fathers of female and male children.

- The data suggest that both mothers and fathers in this study tend to lean towards Authoritarian and Indulgent feeding styles.
- Fathers exhibit a remarkably consistent distribution of feeding styles across younger and older infant age groups, with Authoritarian styles ranging from 44.1% to 41.4%, Indulgent styles from 40.7% to 41.9%, Authoritative styles from 6.8% to 8.6%, and Uninvolved styles from 8.5% to 8.1%."Authoritarian: 44.1% younger, 41.4% older.
- Mothers show a trend of increased Authoritarian feeding styles and decreased Indulgent feeding styles as children age, though it is not statistically significant.

ANTHROPOMETRIC STATUS OF THE CHILDREN:

- 16.4% of children were classified as underweight, and 5.6% experienced severe underweight.
- 16.7% of the children experienced stunting, with a notable 7.4% experiencing severe stunting.
- 11.5% of the children experienced wasting, and 3.0% suffered from severe wasting.
- It was observed that there was a significantly higher proportion of male children who experienced wasting, when compared to the female children.
- A small percentage (1.1%) of children were classified as overweight or obese, and 5.6% were at risk of overweight.
- The proportion of underweight children was similar across both age groups.
- Stunting was more prevalent in the 12–24-month age group (18.6%) compared to the 6–12-month age group (10.2%).
- Wasting was more prevalent in the older age group (12.9%) than the younger age group (6.8%).

Nutritional status of children in relation with the parental feeding style:

- The data indicates that the majority of children, regardless of their parent's feeding style, maintain a normal weight status. However, children whose mothers use a feeding style where they give in to their child's demands (Indulgent) have the highest rate of being underweight (almost 24%). Similarly, children whose fathers use an Indulgent feeding style also have a high rate of being underweight (about 22%).

- Similar to underweight, the majority of children across all parental feeding style categories were classified as normal. Children whose mothers practice an Uninvolved feeding style exhibit the highest prevalence of stunting at 25.5% while the highest prevalence of stunting was found among children with Authoritative fathers (27.3%).
- Unlike underweight and stunting, a statistically significant association was observed between maternal feeding style and wasting in children. Children whose mothers practice Indulgent feeding styles exhibit significantly higher prevalence of wasting at 16.5%. However, the highest prevalence of wasting among children were found with the Indulgent (15.2%) feeding style.
- Essentially, the data conveys that, while maternal feeding style does not significantly impact underweight or stunting, it does significantly impact wasting. Children of mothers who are Authoritative or Indulgent are more likely to exhibit wasting. Unlike the findings related to maternal feeding styles and wasting, this data indicates that there is no statistically significant association between paternal feeding styles and the nutritional status of children (underweight, stunting, or wasting).

Conclusion:

This study provides a comprehensive overview of complementary feeding practices, parental feeding styles, and their impact on the nutritional status of children aged 6-24 months. The demographic profile revealed a predominantly Hindu population with a significant proportion from Scheduled Tribes and Other Backward Classes, residing in joint families with limited additional income sources. Mothers predominantly had high school education and were largely unemployed, while fathers were typically employed as plant and machine operators, with similar educational backgrounds. Key findings highlight that while most parents exhibit positive hygiene practices related to food preparation and child feeding, storage of complementary foods is minimal. Mothers demonstrated strong knowledge regarding the timing and frequency of complementary feeding, as well as the importance of various food groups. However, there were notable gaps in handwashing practices before and after feeding. Regarding parental feeding styles, both mothers and fathers frequently employed Authoritarian and Indulgent approaches, characterized by either high demandingness with low responsiveness or low demandingness with high

responsiveness, respectively. Notably, maternal feeding style significantly influenced wasting in children, with Authoritative and Indulgent styles associated with higher prevalence of wasting. In contrast, paternal feeding styles did not show a statistically significant association with children's nutritional status. This suggests that the *manner* in which mothers feed their children, rather than just *what* they feed them, plays a critical role in preventing wasting, a form of acute malnutrition. Paternal involvement in financial support and food purchasing for children is substantial, with fathers primarily responsible for spending money on food and significantly contributing to food purchases. However, mothers are predominantly responsible for food preparation and teaching children to eat independently. Grandparents play a significant role in assisting mothers with household chores, enabling them to focus on childcare. Dietary diversity is a significant concern, particularly among younger children (6-12 months), with a substantial proportion consuming ultra-processed and unhealthy foods. Older children (12-24 months) exhibited increased consumption of sweets, salty snacks, and sweet beverages, indicating a need for targeted interventions to promote healthier dietary habits. Anthropometric assessments revealed a significant prevalence of stunting and wasting, particularly in older children (12-24 months). Male children exhibited a higher prevalence of wasting compared to female children. Despite a high prevalence of normal weight, the high rates of stunting and wasting indicate chronic and acute malnutrition, respectively. Infant and Young Child Feeding (IYCF) practices showed gaps, with a low percentage of children receiving early initiation of breastfeeding and exclusive breastfeeding for the recommended duration. While meal frequency was generally adequate, dietary diversity and the consumption of ultra-processed foods were concerning.

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Annexure 3.1

Institutional Ethics
Committee for Human
Research
(IECHR)

FACULTY OF FAMILY AND COMMUNITY SCIENCES
THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

Ethical Compliance Certificate 2024-2025

This is to certify Ms. Sarthi Patel study titled; "Parental feeding style and dietary quality of complementary food among 6-24 months children in tribal block of Valsad." from Department of Foods and Nutrition has been approved by the Institutional Ethics Committee for Human Research (IECHR), Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda. The study has been allotted the ethical approval number IECHR/FCSc/M.Sc./10/2024/32.

Komal

Prof. Komal Chauhan
Member Secretary
IECHR

Prof. Mini Sheth
Chairperson
IECHR

Chair Person
IECHR
Faculty of Family & Community Sciences
The Maharaja Sayajirao University of Baroda

Annexure 3.2

INFORMATION LETTER FOR MOTHERS/FATHER

I, Sarthi Patel, a student of Sr. M.Sc. in Dept of Foods and Nutrition at The Maharaja Sayajirao University of Baroda, carrying out a research study under the guidance of Dr. Shruti Kantawala. The proposed topic of our research is **"Parental feeding style and dietary quality of complementary food among 6-24 months children in the selected area".** This study aims to assess the feeding pattern and quality of diet among children (6 months - 2years) of selected areas. Both of these factors influence the nutrient intake as well as growth among children. Diets of many children lack sufficient nutrients resulting in compromised physical growth because of faulty dietary practices, inappropriate knowledge, dislikes for particular foods, lack of support from child's father and their family members, etc.

With the help of an interview, we will ask some questions regarding family background, dietary intake, feeding pattern. Weight and height of the children will be taken for nutritional status assessment. No Blood samples will be collected. If you do not want to answer certain questions or do not want to disclose certain information, then you are free to omit them. The information given by you will be confidential and used only for study purpose. By taking part in this research, no remuneration will be provided to the child or the parents, neither would it harm the child.

We thank you for your willingness and participation in this research.

By:

Guide: Dr. Shruti Kantawala

Student: Sarthi Patel

Department of Foods and Nutrition, The Maharaja Sayajirao University of Baroda.

Annexure 3.3

CONSENT FORM

I am thereby ready to allow participation in this research. I have understood that in this study, I will need to provide information on family background, dietary intake and feeding pattern in the interview. I have read all the information regarding this research or the information has been read out to me. I have got an opportunity to ask questions regarding the same and I have got satisfactory answers to my question. Therefore, I willingly consent to participate in the study.

Name: _____ Gender: _____ Age: _____

Date: _____

Contact No: _____

Signature of the parents: _____

The Maharaja Sayajirao University of Baroda, Faculty of Family and Community Sciences

Department of Foods and Nutrition

માહિતી પત્ર

હું, **સારથી પટેલ**, સિનિયર M.Sc.ની વિદ્યાર્થીની. બરોડાની મહારાજા સયાજીરાવ યુનિવર્સિટીમાં ખોરાક અને પોષણ વિભાગમાં, ડૉ. શ્રુતિ કાંટાવાલા અને ડૉ. શ્વેતા પટેલના માર્ગદર્શન હેઠળ સંશોધન અભ્યાસ કરી રહ્યા છે. અમારા સંશોધનનો સૂચિત વિષય છે **"બાળકોમાં માતા-પિતાની ખોરાકની શૈલી અને આહારની ગુણવત્તા"** છે. આ પત્રમાં સંશોધન સંબંધિત માહિતી છે.

આ અભ્યાસનો ઉદ્દેશ્ય **બાળકો (6 મહિના - 2 વર્ષ) માં ખોરાકની પદ્ધતિ અને આહારની ગુણવત્તાનું મૂલ્યાંકન કરવાનો છે**. આ બંને પરિબળો બાળકોમાં પોષક તત્વોની માત્રા તેમજ વૃદ્ધિને પ્રભાવિત કરે છે. ઘણા બાળકોના આહારમાં પૂરતા પોષક તત્વોનો અભાવ હોય છે જેના પરિણામે શારીરિક વૃદ્ધિ ખોરવાઈ જાય છે કારણ કે ખોરાકની ખોટી પદ્ધતિઓ, અયોગ્ય જ્ઞાન, ખાસ ખોરાક પ્રત્યે અણગમો, બાળકના પિતા અને તેમના પરિવારના સભ્યો તરફથી સમર્થનનો અભાવ વગેરે.

ઇન્ટરવ્યુની મદદથી, અમે કેટલાક પ્રશ્નો પૂછીશું અને જવાબો નોંધીશું. ઇન્ટરવ્યુ દ્વારા કૌટુંબિક પૃષ્ઠભૂમિ, આહારનું સેવન, ખોરાક આપવાની પેટર્ન પરનો ડેટા એકત્રિત કરવામાં આવશે. પોષણની સ્થિતિના મૂલ્યાંકન માટે બાળકોનું વજન અને ઊંચાઈ લેવામાં આવશે. બાયોકેમિકલ અંદાજો માટે રક્ત નમૂના એકત્રિત કરવામાં આવશે નહીં.

જો તમે અમુક પ્રશ્નોના જવાબ આપવા માંગતા નથી અથવા અમુક માહિતી જાહેર કરવા માંગતા નથી, તો તમે તેને છોડી દેવા માટે સ્વતંત્ર છો. તમારા દ્વારા આપવામાં આવેલી માહિતી ગોપનીય રહેશે અને તેનો ઉપયોગ ફક્ત અભ્યાસ હેતુ માટે જ કરવામાં આવશે.

સંશોધનના અંતે, પરિણામો તમારી સાથે શેર કરવામાં આવશે. આ સંશોધનમાં ભાગ લેવાથી, બાળકને કોઈ મહેનતાણું આપવામાં આવશે નહીં, ન તો તેનાથી બાળકને નુકસાન થશે.

આ સંશોધનમાં તમારી ઈચ્છા અને સહભાગિતા બદલ અમે તમારો આભાર માનીએ છીએ.

દ્વારા,

(માર્ગદર્શન): ડૉ. શ્રુતિ કાંટાવાલા અને ડૉ. શ્વેતા પટેલ

(વિદ્યાર્થીની): સારથી પટેલ

ખોરાક અને પોષણ વિભાગ, મહારાજા સયાજીરાવ યુનિવર્સિટી ઓફ બરોડા.

સંમતિ પત્રક

આથી હું આ સંશોધનમાં ભાગ લેવા માટે તૈયાર છું. હું સમજી ગયેલ છું કે આ અભ્યાસમાં, મારે ઇન્ટરવ્યુમાં કૌટુંબિક પૃષ્ઠભૂમિ, આહારનું સેવન અને ખોરાક આપવાની પદ્ધતિ વિશે માહિતી પ્રદાન કરવાની જરૂર પડશે. મેં આ સંશોધન સંબંધિત તમામ માહિતી વાંચી છે અથવા માહિતી મને સમજાવવામાં આવી છે. મને તે અંગેના પ્રશ્નો પૂછવાની તક મળી છે અને મને મારા પ્રશ્નના સંતોષકારક જવાબો મળ્યા છે. તેથી, હું અભ્યાસમાં ભાગ લેવા માટે સ્વેચ્છાએ સંમતિ આપું છું.

નામ: _____ **જાતિ:** _____ **ઉંમર:** _____

તારીખ:_____

મો. નં:_____ **વાલીની સહી:** _____

Annexure 3.4

Questionnaire

Section 1: Basic Information of the Survey		
Date Of Survey:		—/—/—
Area:		1. Vadodara 2. Dabhoi 3. Pardi
Sr. No.	Questions	Answer
1	Address	
2	Name of Mother/ Father	
3	Age of Mother (yrs)	
4	Education of Mother	1. Profession or Honors 2. Graduate 3. Intermediate or diploma 4. High school certificate 5. Middle school certificate 6. Primary school certificate 7. Illiterate
5	Occupation of Mother	1. Legislators, Senior Officials and Managers 2. Professionals 3. Technicians and Associate Professionals 4. Clerks 5. Skilled Workers and Shop and Market Sales Workers 6. Craft and Related Trade Workers 7. Skilled Agricultural and Fishery Workers 8. Elementary Occupation 9. Plant and Machine Operators and Assemblers 10. Unemployed

6	Name of Father	
7	Age of Father (yrs)	
8	Education of Father	1. Profession or Honors 2. Graduate 3. Intermediate or diploma 4. High school certificate 5. Middle school certificate 6. Primary school certificate 7. Illiterate
9	Occupation of Father	1. Legislators, Senior Officials and Managers 2. Professionals 3. Technicians and Associate Professionals 4. Clerks 5. Skilled Workers and Shop and Market Sales Workers 6. Craft and Related Trade Workers 7. Skilled Agricultural and Fishery Workers 8. Elementary Occupation 9. Plant and Machine Operators and Assemblers 10. Unemployed
10	Religion	1. Hindu 2. Muslim 3. Christian 4. Sikh 5. Any other (Specify) _____
11	Caste	1. ST 2. SC 3. OBC 4. General

12	Type of family	1. Nuclear 2. Joint 3. Extended
13	Total no. of family member	
14	Any Other source of income	1. Agriculture 2. Poultry 3. House/Shop rent 4. None 5. Any other (specify) _____
15	Total monthly income of the family	
16	Is there a toilet facility available in the household?	1. Yes 2. No

Section 2: Child Information		
Sr. No.	**Questions**	**Answer**
17	Name of the child	
18	Gender of the child	1. Male 2. Female 3. Transgender
19	Birth date of the child	
20	Birth weight (in kg) of the child	
21	Birth order of child	
Anthropometric Measurements		
22	Wight (in kg)	
23	Length/Height (in cm)	

Section 3: Complementary feeding Information:		
Sr. No.	**Questions**	**Answer**
24	In which month did you introduce complementary feed?	1. At Completion of 6 months 2. Before 6 months 3. After 7 months

		4. Not started yet
25	How many times do you give complementary feed in a day?	1. Breakfast 2. Brunch 3. Lunch 4. Snack 5. Dinner 6. Any other (specify) _____
26	How much is the child fed at one time?	1. 1 tbsp 2. 1/4th cup 3. ½ cup 4. 1 cup
27	What is the consistency of the complementary food?	1. Thin 2. Medium 3. Thick

WASH Practices:

Sr. No.	Questions	Answer
28	When do you wash your hands with soap? (Multiple response)	1. Before cooking 2. After cooking 3. Before feeding the child 4. After feeding the child 5. After cleaning the child's feces
29	For how long do you store cooked complementary foods?	1. Not storing 2. For 2-3 hours 3. More than 4 hours 4. More than 1 day
30	When do you cut your vegetables?	1. Before washing 2. After washing
31	Could you please describe step by step how you wash your hands?	1. Washes hands in a bowl of water (sharing with other people) — poor practise

		2.With someone pouring a little clean water from a jug onto one's hands — appropriate practise 3.Under running water — appropriate practise 4. Washes hands with soap or ashes 5.Other (specify _____) 6. Don't know/no answer
32	What is the main source of water used by your household for drinking, cooking and hand washing?	1=Piped water into dwelling 2 = Piped into yard or plot 3= Public tap/standpipe 4= Tube well/borehole 5= Bottled water 6= Handpump
33	How do you treat the item you use to collect water? Did you treat it in any way to make it clean?	0 = no treatment 1 = Use of water and soap (clean container) Alum 2 = Any Other
34	Could you describe how you store water?	1 = Clean container or jar 2 = Covered container or jar 3 = Clean and covered container or jar 4 = Other Don't know/no answer =88
35	What container is used to store drinking water?	1.Earthen pot 2.Metal pot 3.Plastic container 4.RO tank 5.Any other (specify)_____
36	What is used for taking out the water?	1.Glass 2.Tap 3.Doyo

37	Do you treat your water in any way to make it safe to drink?	1= Yes 2= No Don't know/no answer =88
38	What do you usually do to the water to make it safer to drink? (multiple response)	□ Boil it Add bleach/chlorine □ Strain it through a cloth □ Use a water filter (ceramic, sand, composite, etc.) □ Use solar disinfection □ Let it stand and settle □ Other (specify_____) □ Don't know/no answer=88
39	If you know that the water you are going to use for cooking or drinking is not safe or does not come from a safe source, what should you do? (multiple response)	□ Boil it Add bleach/chlorine □ Strain it through a cloth □ Use a water filter (ceramic, sand, composite, etc.) □ Use solar disinfection □ Let it stand and settle □ Other (specify_____)
40	Do you add extra fats, oils, sugar and jaggery after preparing complementary foods?	1. Yes 2. No
41	How much time do you take to feed the child?	1. 15 minutes 2. 30 minutes 3. 45 minutes 4. 1 hour

Support Domains Questions:

Sr. No.	Questions	Answer
42	Who is responsible for spending money for food for children?	1. Mother 2. Father 3. Both 4. Grandfather 5. Grandmother 6. Other family member 7. None of this

43	Who is responsible for purchasing food for children?	1. Mother 2. Father 3. Both 4. Grandfather 5. Grandmother 6. Other family member 7. None of this
44	Who is preparing food for the child?	1. Mother 2. Father 3. Both 4. Grandfather 5. Grandmother 6. Other family member 7. None of this
45	Who gives advice/reminds the mother on feeding the child?	1. Mother 2. Father 3. Both 4. Grandfather 5. Grandmother 6. Other family member 7. None of this
46	Who teaches the child to eat by him/herself?	1. Mother 2. Father 3. Both 4. Grandfather 5. Grandmother 6. Other family member 7. None of this

47	Who washes the child's hands before the child eats?	1. Mother 2. Father 3. Both 4. Grandfather 5. Grandmother 6. Other family member 7. None of this
48	Who helps in other chores so that the mother can prepare food or feed the child?	1. Mother 2. Father 3. Both 4. Grandfather 5. Grandmother 6. Other family member 7. None of this

Knowledge of Parents of Children Under 2 years on Complementary Feeding Practices:

Sr. No.	Questions	Answer
49	Are these age-appropriate feeding behaviours? Yes/No	1. Feeding milk to a 3-month-old who has lost his mother with a cup rather than a bottle. Yes/No 2. Giving a 10-month child own bowl and spoon to eat alone. Yes/No 3. Talking to a 10-month-old child during a meal. Yes/No 4. Keeping away 12-month-old child from touching her food and plate. Yes/No 5. Showing affection to a 15-month-old child while feeding, showing that he/she is loved by everyone. Yes/No 6. Spoon feeding and holding a cup for a 24-month-old, not allowing child to touch spoon. Yes/No

50	From what age a child should be given complementary food?	1. Less than 6 months 2. At 6 months 3. After completion of 6 months 4. After 9 months
51	What consistency of food should be given to the 7-month child?	1. Liquid form 2. Solid 3. Semi solid 4. All of them
52	From what age a child should be eating food by him herself?	1. 7-8 months 2. 8-10 months 3. 11-12 months 4. After 1 year 5. After 2 years
53	How many times a child is fed complementary feed in a day?	□ Breakfast □ Brunch □ Lunch □ Snack □ Dinner
54	How many times do we have to give complementary feed in a day?	□ Breakfast □ Brunch □ Lunch □ Snack □ Dinner
55	Breast milk should be continued along with complementary food?	1. Yes 2. No
56	Which food items should be fed to the child?	1. Breastmilk 2. Cereal, roots & tuber 3. Legumes & nuts 4. Vit. A rich fruits & vegetables 5. Dairy products 6. Egg 7. Other fruits & vegetables 8. Flesh foods

Parent's role in complementary feeding: Practices

Sr. No.	Questions	Answer

57	How do you participate in complementary feeding?	1. Purchasing 2. Selecting food item 3. In feeding 4. Meal preparation
58	Do you feed the child?	1. Yes 2. No 3. Some times
59	How many times do you give complementary feed in a day?	1. Breakfast 2. Brunch 3. Lunch 4. Snack 5. Dinner 6. None of them
60	How do you feed the child?	1. Watching TV 2. Telling stories 3. Giving toys 4. Giving books (Storybook, hardbound book) 5. Giving mobile phone 6. None of them
61	Do you wash your child's hands before feeding?	1. Yes 2. No 3. Some times
62	Do you wash your child's hands after feeding?	1. Yes 2. No 3. Some times
63	Do you change your child’s nappy?	1. Yes 2. No 3. Some times
64	Do you make your child visit the hospital?	1. Yes 2. No 3. Some times

65	If yes, When do you make your child visit the hospital?	1. Suffering from illness 2. For immunization 3. Both times 4. No 5. Any other (specify) _____
66	How would you rate your involvement in your child's feeding practices?	1. not involved at all 2. Slightly involved 3. Moderately involved 4. Quite involved 5. Very involved
67	How often do you have meals with your child?	1. Daily 2. Most days of the week 3. A few times a week 4. Rarely 5. Never
68	How did (name of child) receive the food yesterday?	1= The child ate by him/herself 2= The child was fed by me 3= The child was fed by someone else 99= Other (specify
69	Does (name of child) use a separate bowl/plate/cup for feeding?	1.Yes 2.No

Communication and Support:

Sr. No.	Questions	Answer
70	How often do you discuss your child's nutrition and feeding practices with your partner?	1. Daily 2. Weekly 3. Monthly 4. Sometimes 5. Rarely 6. Never

71	Do you provide emotional and practical support to your partner in matters related to child feeding and nutrition?	1. Yes, regularly 2. Occasionally 3. Sometimes 4. No, not at all
72	Have you attended any parenting or nutrition education programs that have influenced your knowledge about cold feeding practices?	1. Yes 2. No 3. Not sure

Challenges and Barriers:

Sr. No.	Questions	Answer
73	Do you face any cultural or society norms that affect your ability to be involved in your child's nutrition? If yes, specify	1. Yes 2. No _____

Diet Quality Questionnaire: DQQ for IYCF

Sr. No	Questions	Circle the answer	
1	Was [NAME] ever breastfed?	Yes/No/or don't	Don't Know (DK)
2	How long after birth was [NAME] first put to the breast? If immediately, circle "000" 000 If less than one hour, record "00" hours If less than 24 hours, record hours Otherwise, record days	000	
	How long was the Child exclusively breastfed?	1. 0 2. 1 3. 2 4. 3 5. 4 6. 5	

		7. 6	
3	In the first 2 days after delivery, was [NAME] given anything other than breastmilk to eat or drink – anything at all like water, infant formula or baby milk, honey, sugar water, or gripe water?	Yes or No	Don't Know (DK)
4	Was [NAME] breastfed yesterday during the day or at night?	Yes or No	Don't Know (DK)
5	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night?	Yes or No	Don't Know (DK)
6.	Plain water?	Yes or No	Don't Know (DK)
6.2	Infant formula or baby milk such as Amul, Lactogen, or Dexolac? IF YES: How many times did (NAME) drink infant formula? (IF 7 OR MORE TIMES, RECORD '7').	Yes or No	Don't Know (DK) Don't Know (DK
6.3	Milk from animals including fresh, packaged, or or powdered?	Yes or No	Don't Know (DK)
6.4	IF YES: How many times did (NAME) drink milk? (IF 7 OR MORE TIMES, RECORD '7'). IF YES: Was any of the milk a sweet or flavored type of milk?	Yes or don't	Don't Know (DK)
6.5	Bournevita, Horlicks, or Boost?	Yes or don't	Don't Know (DK)
6.6	Fruit juice, packet juice such as Rasna or Frooti, sugarcane juice, or nannari sarbath?	Yes or don't	Don't Know (DK)
6.7	Yes or No	Yes or No	Don't Know (DK)
6.8	Tea, coffee, or herbal drinks?	Yes or No	Don't Know (DK)
6.9	IF YES: was the drink sweetened?	Yes or No	Don't Know (DK)
7	Yesterday, did you eat any of the following foods:		
1	Rice, idli, dosa, poha, naan, kulcha, paratha, or upma?	Yes or No	

2.1	Chapati, roti, dalia, or roasted maize?	Yes or No	
2.2	Pearl millet or finger millet?	Yes or No	
3	Potato, sweet potato, turnip, arum root, tapioca, or raw banana?	Yes or No	
4	Daal, sambar, chickpeas, kidney beans, soya, or khichdi?	YES or NO	
	Yesterday, did you ate any of the following vegetables:		
5	Carrots, or pumpkin that is orange inside?	YES or NO	
6.1	Mustard leaves, spinach, radish leaves, cassava leaves, taro leaves, drumstick leaves, Amaranth leaves, or wild greens/other greens?	YES or NO	
7.1	Tomatoes, eggplant, okra/lady finger, French beans, cauliflower, cabbage, or beetroot?	YES or NO	
7.2	Bitter gourd, bottle gourd, pointed gourd, ivy gourd, apple gourd, ridged gourd, or beetroot?	YES or NO	
7.3	Cucumber, radish, capsicum, German turnip, or drumstick?	YES or NO	
	Yesterday, did you cat any of the following fruits:		
8	Papaya, mango, orange musk melon, or apricots?	YES or NO	
9	Orange, tangerine, or grapefruit?	YES or NO	
10.1	Ripe banana, apple, pear, watermelon, guava, custard apple, pomegranate, or pineapple?	YES or NO	
10.2	Grapes, kiwi, peaches, jackfruit, chickoo, jamun, palmyra palm fruit, or other wild fruits?	YES or NO	
	Yesterday, did you eat any of the following sweets:		
11	Cakes, cream biscuits, biscuits, suji halwa/kesari bath, jalebi, or ladoo?	YES or NO	
12	Other mithai, rice pudding, kulfi, ice cream, milkshake, toffees, or chocolates?	YES or NO	

	Yesterday, did you eat any of the following foods of animal origin:		
13	Eggs?	YES or NO	
14	Paneer or cheese?	YES or NO	
15	Curd, lassi, buttermilk, or raita?	YES or NO	
16	Sausages or salami?	YES or NO	
17	Mutton, beef, lamb, or liver?	YES or NO	
18	Pork or wild meat?	YES or NO	
19	Chicken, duck, or turkey?	YES or NO	
20	Fish, prawn, crab, or seafood?	YES or NO	
	Yesterday, did you eat any of the following other foods:		
21	Peanuts, cashews, almonds, pistachios, walnuts, pumpkin seeds, or sunflower seeds?	YES or NO	
22	Potato chips, namkeen or mixture?	YES or NO	
23	Instant noodles such as Maggi noodles or Wai Wai?	YES or NO	
24	Samosa, pakora, puri, vada, mathri, kachori, murukku, or bonda?	YES or NO	
	Yesterday, did you have any of the following beverages:		
25	Milk, flavoured milk, chai with milk, or coffee with milk?	YES or NO	
26	Tea with sugar, coffee with sugar, milk with sugar, flavoured milk, Bournevita, Horlicks, or Boost?	YES or NO	
27	Fruit juice, packet juice such as Rasna or Frooti, sugarcane juice, or nannari sarbath?	YES or NO	
28	Soft drinks such as Sprite, Pepsi, Mirinda, or energy drinks?	YES or NO	

	Yesterday, did you get food from any place like...		
29	McDonald's, KFC, Pizza Hut, Domino's, Burger King, or other places that serve pizza or burgers?	YES or NO	

Food Frequency Questionnaire (FFQ)

Food item	Daily	4-5 times a week	Thrice a week	Once a week	Once in 10 days	Once in 15 days	Once in a month	Occasionally	Never
Ultra-Processed Foods									
Infant formula									
Cereal (Ceralac)									
Bread/Buns									
Biscuits									
Cornflakes, Chocos									
Sev Mamra / Papad Poha (Outside)									
Instant Noodles (Maggie)									
High in fat									
Sev									
Chips,kurkure									
Choda fadi, mathiya									
Papdi, gathiya									
Namkeen/ chavanu									
High in sugar									

Cream roll/Bun									
Ice-cream									
Cakes / pastry									
Homemade sweets (Sukhdi)									
Ready to eat sweets (Shrikhand)									
Cookies/ Khari /toast									
Chocolates, candies									
Health drinks (bornvita, horlics)									
High in salt									
Bhungla									
Instant soup									
sauces									
Papad									
Pickle									

Feeding Practices and Structure questionnaire:

Please circle only one number per row	Never	Rarely	Sometimes	Often	Alwa ys
Milk feeding version Feeding on demand					
I feed my baby whenever he wants	1	2	3	4	5
I feed my baby at set times	1	2	3	4	5
I decide when it is time for my baby to have a feed	1	2	3	4	5

I let my baby decide when he would like to have a feed	1	2	3	4	5
Parent-led feeding					
When deciding how much to feed my baby, I rely on how hungry he is	1	2	3	4	5
I feed my baby for a set time	1	2	3	4	5
I carefully control how much my baby feeds	1	2	3	4	5
I follow a rule about how much my baby should feed	1	2	3	4	5
I let my baby decide how much he feeds	1	2	3	4	5
I decide how much my baby feeds	1	2	3	4	5
Persuasive feeding					
I feed my baby extra milk, just to make sure he gets enough	1	2	3	4	5
If my baby indicates he is not hungry, I try to get him to feed anyway	1	2	3	4	5
I feed my baby extra milk so he sleeps longer	1	2	3	4	5
Using food to calm					
I feed my baby to settle him, even if he is not hungry	1	2	3	4	5
I offer my baby a feed when he is unsettled or crying	1	2	3	4	5
I offer my baby a feed when he is hurt	1	2	3	4	5
When my baby gets unsettled or is crying, feeding him is one of the first things I do	1	2	3	4	5

I feed my baby to make sure that he does not get unsettled or cry	1	2	3	4	5
(Semi-)Solids feeding version					
Feeding on Demand					
My child eats at set times	1	2	3	4	5
I decide when it is time for my child to eat	1	2	3	4	5
I let my child decide when she/he would like to eat	1	2	3	4	5
My child has a set mealtime routine	1	2	3	4	5
Family Meal Environment					
My child eats together with other family members.	1	2	3	4	5
My child is given the same foods as the rest of the family (pureed, mashed, chopped).	1	2	3	4	5
Whether my child is eating or not, my child sits with the rest of the family when they are having a meal.	1	2	3	4	5
I eat my meals while my child eats	1	2	3	4	5
Parent-led feeding					
I carefully control how much my child eats	1	2	3	4	5
I have a rule about how much my child should eat	1	2	3	4	5
I let my child decide how much she/he eats	1	2	3	4	5
I decide how much my child eats	1	2	3	4	5

Persuasive feeding					
I encourage my child to eat all of the food in front of him/her	1	2	3	4	5
When my child turns away, I try to get her/him to eat a little bit more	1	2	3	4	5
If my child indicates she/he is not hungry I try to get her/him to eat anyway	1	2	3	4	5
I say or do something to show my disapproval of my child for not eating	1	2	3	4	5
I praise my child after each bite to encourage finishing the food	1	2	3	4	5
When my child refuses food they usually eat, I encourage her/him to eat it	1	2	3	4	5
I play games to make sure my child eats enough	1	2	3	4	5
Using food to calm	1	2	3	4	5
I give my child food to settle him/her even if he/she is not hungry	1	2	3	4	5
I offer my child something to eat to make her/him feel better when she/he is unsettled or crying	1	2	3	4	5
I offer my child something to eat to make her/him feel better when she/he is hurt	1	2	3	4	5
When my child gets unsettled or is crying, one of the first things I do is give her/him food	1	2	3	4	5
I give my child food to make sure that they do not get unsettled or cry	1	2	3	4	5
I use food to distract my child or keep him/her busy	1	2	3	4	5

Using (non-)food rewards					
I offer foods to my child as a reward for good behaviour	1	2	3	4	5
I offer my child their favourite foods in exchange for good behaviour	1	2	3	4	5
I promise my child something other than food if they eat (for example: “If you eat your beans, we can go to the park”).	1	2	3	4	5
When my child refuses food they usually eat, I encourage eating by offering a non-food reward (for example: favourite toy or sticker).	1	2	3	4	5
I encourage my child to eat something by using food as a reward (for example: “If you finish your vegetables, you will get some dessert")	1	2	3	4	5
When my child refuses food they usually eat, I encourage eating by offering a food reward (for example: dessert).	1	2	3	4	5
I use desserts as an encouragement to get my child to eat the main course	1	2	3	4	5
I make my child finish the main course before having a dessert.	1	2	3	4	5
I warn my child that I will take a favourite food away if my child does not eat a food they do not like (for example: “If you don’t finish your vegetables, you won’t get dessert”).	1	2	3	4	5

When my baby gets unsettled or is crying, feeding him is one of the first things I do	1	2	3	4	5

I feed my baby to make sure that he does not get unsettled or cry	1	2	3	4	5
(Semi-)Solids feeding version					
Feeding on demand (lower score indicates feeding on demand	1	2	3	4	5
My child eats at set times	1	2	3	4	5
I decide when it is time for my child to eat	1	2	3	4	5
I let my child decide when she/he would like to eat*	1	2	3	4	5
My child has a set mealtime routine	1	2	3	4	5
Family Meal Environment					
My child eats together with other family members.	1	2	3	4	5
My child is given the same foods as the rest of the family (pureed, mashed, chopped).	1	2	3	4	5

Whether my child is eating or not, my child sits with the rest of the family when they are having a meal.	1	2	3	4	5
I eat my meals while my child eats	1	2	3	4	5
Parent-led feeding					
I carefully control how much my child eats	1	2	3	4	5
I have a rule about how much my child should eat	1	2	3	4	5
I let my child decide how much she/he eats*	1	2	3	4	5
I decide how much my child eats	1	2	3	4	5
Persuasive feeding					
I encourage my child to eat all of the food in front of him/her	1	2	3	4	5
When my child turns away, I try to get her/him to eat a little bit more	1	2	3	4	5

If my child indicates she/he is not hungry I try to get her/him to eat anyway	1	2	3	4	5
I say or do something to show my disapproval of my child for not eating	1	2	3	4	5
I praise my child after each bit to encourage finishing the food	1	2	3	4	5
When my child refuses food they usually eat, I encourage her/him to eat it	1	2	3	4	5
I play games to make sure my child eats enough	1	2	3	4	5
Using food to calm	1	2	3	4	5
I give my child food to settle him/her even if he/she is not hungry	1	2	3	4	5
I offer my child something to eat to make her/him feel better when she/he is unsettled or crying	1	2	3	4	5
I offer my child something to eat to make her/him feel better when she/he is hurt	1	2	3	4	5

When my child gets unsettled or is crying, one of the first things I do is give her/him food	1	2	3	4	5
I give my child food to make sure that they do not get unsettled or cry	1	2	3	4	5
I use food to distract my child or keep him/her busy	1	2	3	4	5
Using (non-)food rewards					
I offer foods to my child as a reward for good behaviour	1	2	3	4	5
I offer my child their favourite foods in exchange for good behaviour	1	2	3	4	5
I promise my child something other than food if they eat (for example: “If you eat your beans, we can go to the park”).	1	2	3	4	5
When my child refuses food they usually eat, I encourage eating by offering a non-food reward (for example: favourite toy or sticker).	1	2	3	4	5

I encourage my child to eat something by using food as a reward (for example: “If you finish your vegetables, you will get some dessert")	1	2	3	4	5
When my child refuses food they usually eat, I encourage eating by offering a food reward (for example: dessert).	1	2	3	4	5
I use desserts as an encouragement to get my child to eat the main course	1	2	3	4	5
I make my child finish the main course before having a dessert.	1	2	3	4	5
I warn my child that I will take a favourite food away if my child does not eat a food they do not like (for example: “If you don’t finish your vegetables, you won’t get dessert”).	1	2	3	4	5

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