PARENTAL FEEDING STYLE AND DIETARY QUALITY OF COMPLEMENTARY FOODS AMONG 6-24 MONTHS CHILDREN IN RURAL BLOCK OF DABHOI

APRIL 2025

NIDHI SHAH
B.Sc. (F.C.Sc.)
(Public Health Nutrition)

PARENTAL FEEDING STYLE AND DIETARY QUALITY OF COMPLEMENTARY FOODS AMONG 6-24 MONTHS CHILDREN IN RURAL BLOCK OF DABHOI

A dissertation in partial fulfilment of the requirement for the degree of Master of Science

Family and Community Sciences

Foods and Nutrition

(PUBLIC HEALTH NUTRITION)

By

Nidhi Shah

Department of Foods and Nutrition

Faculty of Family and Community Sciences

The Maharaja Sayajirao University of Baroda

Vadodara, Gujarat, India

APRIL 2025

CERTIFICATE

This is to certify that the research work present in this thesis has been carried out independently by Miss Nidhi KartikKumar Shah, 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.

DR. SHRUTI KANTAWALA
(Research Guide)

I/c Head, Department of Foods and Nutrition
Faculty of Family and Community Sciences
The Maharaja Sayajirao University of Baroda
Vadodara, Gujarat, India

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to God for his blessings, good health, guidance, and strength throughout this research.

With immense appreciation and gratitude, I would like to extend my heartfelt acknowledgement to the people who helped me bring this research to reality.

Prior to all, I would like to express my deepest gratitude to my guide, ***Dr. Shruti Kantawala****, for her guidance, encouragement and support throughout the research and writing process. The research would not have been in good shape without her stimulation and guidance.*

I am deeply grateful to Prof. Mini Sheth, former Head of the Department of Foods and Nutrition, for providing the essential facilities that enabled my research.

My sincere appreciation also goes to Prof. Anjali Pahad, Dean of the Faculty of Family and Community Sciences, for her unwavering encouragement and facilitation of our research endeavours.

I would extend a special thanks to Dr. Shweta Patel for encouragement and helping me with all my doubts patiently.

I would like to acknowledge the countless individuals who have contributed to my research in ways large and small, including all the participants and all the Department members for their help and support, your contributions have been invaluable.

This journey would not have been possible without the love, patience, and constant encouragement of my family. I am deeply grateful to my father ***Kartikkumar Shah*** *and mother* ***Chhayaben Shah****, whose unconditional love and blessings have been my foundation. Their belief in me has carried me through every challenge. A heartfelt thanks to my sister,* ***Aangi Shah****, for her support, affection, and understanding. I also extend my gratitude to my extended family and cousins for their constant encouragement and the joy they bring into my life.*

I am profoundly thankful to my best friends, ***Manav*** *and* ***Priyanshi****, for being my constant pillars of support always checking on me, motivating me, and believing in me. I am also grateful to all my classmates for their friendship and encouragement.*

I am incredibly thankful to my dissertation partner, ***Sarthi*** *and* ***Heer****, for their collaboration, dedication, and consistent support throughout this work.*

To all whose names may not be mentioned here but have contributed in some way please know that your support is deeply appreciated. This thesis stands on the collective efforts of many, and I am truly grateful to each one of you.

I owe this achievement to my parents, my sister, my family, my friends, and my college without their support, this journey would not have been possible. With all my heart Thank you.

Shah.N.K.

~Nidhi Shah

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BAZ- Body Mass Index for age Z score

BF- Breast Feeding

CF- Complementary Feeding

CHC- Community Health Centre

CMAM- Community based Management of Acute Malnutrition

CMTC- Child Malnutrition Treatment Centre

CNNS- Comprehensive National Nutrition Survey

DDS- Dietary Diversity Score

DQQ- Diet Quality Questionnaire

DWCD- Department of Women and Child Development

EBF- Exclusive Breastfeeding

ECCE- Early Childhood Care and Education

ECD- Early Childhood Development

EIBF – Early Initiation of Breast Feeding

FFQ- Food Frequency Questionnaire

GMP- Growth Monitoring and Promotion

GNT- Global Nutrition Targets

HAZ- Hight for Age Z score

ICDS- Integrated Child Development Services

IMR- Infant Mortality Rate

IYCF- Infant and Young Child Feeding

MAD- Minimum Acceptable Diet

MDD- Minimum Dietary Diversity

MMF- Minimum Meal Frequency

MOHFW- Ministry of Health and Family Welfare

NCD- Non-Communicable Disease

NFHS- National Family Health Survey

NHM- National Health Mission

NMR- Neonatal Mortality Rate

NRHM- National Rural Health Mission

NUHM- National Urban Health Mission

RCH- Reproductive and Child Health

SC- Sub Centre

SES- Socio-Economic Status

THR- Take Home Ration

U5MR- Under 5 Mortality Rate

UNICEF- United Nations International Children's Emergency Fund

WAZ- Weight for Age Z score

WHO- World Health Organization

WHZ- Weight for Height Z score

WRA- Women of Reproductive Age

ABSTRACT

Parental feeding styles significantly impact the nutritional status and development of children under two years, particularly in resource-limited rural settings where optimal infant and young child feeding (IYCF) practices are often compromised. In such environments, parental guidance in food choices and mealtime interactions is crucial for ensuring adequate nutrition. Authoritative feeding, characterized by responsiveness and structured expectations, fosters healthy eating habits and supports optimal growth. While mothers play a central role in the meal preparation and direct feeding, father involvement in providing nutritious food, fostering a positive mealtime environment, and reinforcing healthy behaviors further enhance their dietary intake. A collaborative parental approach, emphasizing consistent and responsive feeding, is vital for mitigating developmental delays and promoting child well-being in vulnerable rural populations. Hence, this study aimed to assess parental feeding styles and the dietary quality of complementary foods among children aged 6-24 months in rural Dabhoi, a population vulnerable to suboptimal IYCF practices. Using a community-based cross-sectional study and snow-ball sampling, involving 266 parents. Data collection utilized a detailed questionnaire, using Epi-collect 5 v 86.2.1 software, to gather information on socio-economic status, IYCF practices, anthropometric measurements, parent's knowledge, attitudes, and practices (KAP) regarding complementary feeding, dietary quality, and parental feeding styles. This study explains the relationship between parental feeding behaviors and the nutritional status of 6-24-month-old children, providing valuable insights for targeted interventions to improve child health and development.

This community-based cross-sectional study in rural Dabhoi assessed parental feeding styles, dietary quality, and IYCF practices among 266 children aged 6-24 months. The population was predominantly Hindu (72.9%) and belonged to the General category (53.4%), with a majority living in joint families (72.6%). Anthropometric data indicated significant malnutrition: 25.6% of children exhibited mild wasting, 24.1% stunting, and 17.3% underweight. Notably, 82.0% of complementary foods were introduced after 6 months, though feeding frequency varied, with 58.3% receiving food twice a day. Dietary quality assessment revealed that 27.8% met the Minimum Dietary Diversity (MDD), 29.7% the Minimum Meal Frequency (MMF), and

only 10.5% the Minimum Acceptable Diet (MAD). A significant concern was the high consumption of unhealthy foods, including soft drinks (97.4%), deep-fried foods (91.7%), and packaged salty snacks (62.4%). Breastfeeding was common, with 68.8% of children receiving breast milk, and 71.4% being exclusively breastfed for the first six months.

Parental roles varied, mothers were primarily responsible for meal preparation and feeding, while fathers contributed to financial support and food purchasing. Knowledge gaps were observed in complementary feeding practices, with only 59% of mothers and 54.5% of fathers correctly identifying the recommended age for introducing complementary foods. Hygiene practices were suboptimal, with only 36.5% of parents washing their hands before cooking and 34.2% before feeding. Overall, the study highlights the need for targeted interventions to improve IYCF practices, dietary quality, and parental knowledge in this rural population.

This study examined parental feeding practices and styles in relation to child nutritional status among 6-24-month-old children in rural Dabhoi. Mothers exhibited higher mean scores for feeding on demand; females (4.13), males (1.23) and family meal environment; females (3.65), males (3.06) in semi-solid feeding. Fathers showed balanced feeding on demand across genders approximately 3.00 for milk, and 3.73 for semi-solids, with high family meal environment scores around 3.55. Mothers demonstrated slightly higher demandingness (2.37) and responsiveness (1.18) compared to father's demandingness (1.94), and responsiveness (1.70). Indulgent feeding was the most prevalent maternal style in (37%) of females, (33.8%) males), while authoritarian feeding dominated paternal styles; females (37.8%) and males (40.3%). High demandingness was observed in 45.1% of mothers and 52.3% of fathers, with high responsiveness in 49.6% of mothers and 48.9% of fathers. Maternal indulgent feeding correlated with higher stunting (34.0%) and severe underweight (7.7%), while paternal authoritative feeding was associated with higher stunting (37.1%) and no wasting (0%). Overall, feeding styles significantly impacted the child's nutritional status, with indulgent and authoritarian styles showing adverse effects.

INTRODUCTION

FIRST 1000 DAYS OF LIFE

The First 1000 Days are a period of rapid physical growth and mental development for promoting a “critical window”. This period is identified period of foundation for healthy life. First 1000 Days refers to the period that begins with conception and goes up to when the child reaches the second birthday (NHM 2018).

Globally, appropriate infant and young child feeding (IYCF), Including breastfeeding (BF) and complementary feeding (CF) practices, play an essential role in children under two years of age for their growth and development (Dhami et al.,2021). Appropriate nutrition during childhood, especially proper infant and young child feeding (IYCF) is critical for child growth and development. Early initiation of breastfeeding, exclusive breastfeeding for the first six months, timely initiation of complementary feeding and continued breastfeeding for at least 24 months of age are recommended IYCF practices (Modugu et al., 2022).

According to Global Nutrition Report 2022, early initiation of breastfeeding is 56.7% and exclusive breastfeeding is 58% globally. According to NFHS-5, the rate of early initiation of breastfeeding was 41.8%, 63.7% of the children received exclusive breast feeding for first 6 months of life and 45.9% received timely initiation of complementary feeding with continued breast feeding.

At Completion of 6 months a child needs other foods apart from breastmilk. Foods-solid or liquid given to supplement breastmilk are called complementary foods. It is important to continues breastfeeding along with giving complementary foods up-to at-least 24 months of age. Poor dietary intake is the immediate cause of undernutrition among young children and therefore ensuring adequate nutrition during the period between 6 and 24 months of age is a major global health priority (Forsido et al., 2019).

Due to inappropriate IYCF practices, while giving complementary foods, FATVAH criteria should be used, where F=Frequency, A=Amount, T=Thickness (consistency), V=Variety

(different kinds of foods), A=Active/responsive feeding, and H=Hygiene. (UNICEF Uganda, and FAO 2017).

World Health Organization (WHO) and UNICEF have established eight indicators for IYCF practices which include, along with aforementioned IYCF recommendations, Minimum Meal Frequency and Minimum Dietary Diversity. Feeding complementary foods that meet Minimum Acceptable Diet (MAD) is also an important IYCF recommendation. Analysis of the UNICEF global database report for 2024 revealed that only 21% of young children receive MAD globally (Sapkota et al., 2022).

MINIMUM DIETARY DIVERSITY (MDD)

To assess the dietary adequacy of complementary foods in children used MDD indicator. A total of 8 food groups such as 1) grains, roots, tubers and plantains, 2) pulses, nuts and seeds, 3) dairy products (milk, infant formula milk, etc.,) 4) flesh foods 5) eggs, 6) vitamin-A rich fruits and vegetables, 7) other fruits and vegetables, including 8) breast milk is used in the dietary diversity scale used for infants and young children.

	MMF	**MDD**	**MAD**
Global (UNICEF)	48%	27%	17%
India (NFHS-5)	49.3%	25.2%	11.3%
Gujarat (NFHS-5)	38.1%	14.8%	7.1%

ROLE OF PARENTING IN FEEDING STYLES

As young children are completely dependent on their parents for feeding; Parents knowledge and practices regarding IYCF have a strong influence on their children's diet. Hence, it is necessary that parents are aware about appropriate feeding practices for the benefit of their child's health status and immunity. A study by Apriyanto et al., (2020) showed that responsive parental feeding style whereas, pressuring children to eat led to poor growth outcomes. Encouraging parents to identify hunger signals can improve feeding practices. Promoting optimal complementary feeding practices and nutritious food are necessary for increasing both

parent's knowledge and influencing family and their behavior related to child feeding and care taking (Kim Herrera et al., 2021).

Parents should take an active participation in infant and young child feeding and care. Father can positively contribute in improving maternal care infants care and IYCF practices. athers can provide emotional support to mothers and children. According to a study conducted in Pune in 2022 on parental awareness regarding feeding practices in children 12-24 months, adequate nutrition during childhood and infancy is a key factor influencing growth and development and parental feeding styles plays a major role (Ganesan et al., 2021).

BURDEN OF MALNUTRITION

Childhood malnutrition is a significant challenge faced by the World. According to the Global Nutrition Report 2022, the prevalence of stunting is 22%, wasting is 6.7% and overweight 5.7% in children under 5 years of age respectively. Over the last decade, only 5% reduction in the prevalence of stunting has been observed with overweight being stagnant since 2000. (Global Nutrition Report, 2022).

Data of the State of Worlds Children Report (SWOC) (UNICEF,2025), show childhood malnutrition rates to be 32 % for stunting, 19 % for wasting, and 3 % for underweight.

Malnutrition remains a significant public health concern in India. According to NFHS-5, 39% of children under age five years are stunted, 25% are wasted or too thin for their height, which may result from inadequate recent food intake or a recent illness causing weight loss, and 11% are severely wasted. A total of 40% are underweight, which takes into account both chronic and acute undernutrition. Childhood undernutrition contributes to childhood diseases and is a major cause of child mortality in India (NFHS 5). India has a higher prevalence of malnutrition among children under 5 years than global prevalence and the average prevalence in Asia as reported in the Global Nutrition Report (2022).

As per NFHS 5, Gujarat also has a high prevalence of childhood malnutrition with prevalence of stunting is 39%, underweight is 25.1%, and wasting is 39.7% respectively, while 3.9% children being overweight. The nutritional status of children in Gujarat has shown little improvement since NFHS-4 across all indicators. The prevalence of stunting in children is 39% has which remained unchanged over the four years between NFHS-4 and NFHS-5. There has

been a slight increase in the underweight children from 39% to 40% and a minor decrease in the wasted children from 26% to 25% since. Also, there are 32.4% stunted children in Urban area and 43% in Rural area and 33.3% underweight children in Urban area and 43.5% in Rural area (NFHS-4 (2015-1016); NFHS 5(2019-20)).

Undernutrition is reported to be a major contributor to childhood mortality rates, with almost half of the childhood deaths accruing as a result of malnutrition.

According the NFHS-5 report, India has high childhood mortality rates with NMR of 25 per 1000 live births, IMR of 35 per 1000 live births and U5MR of 42 per 1000 live births.

The childhood mortality rates are also reported to be high in Gujarat. In Gujarat NMR is 26 per 1000 live births, IMR is 36 per 1000 live births and U5MR is 45 per 1000 live births.

The report further shows that childhood mortality rates are prominently high in Rural Gujarat as compared to Urban Gujarat.

NMR in Gujarat is 16.8 per 1000 live births in Urban area and 24.8 per 1000 live births in Rural area. IMR in Urban area is 24.1 per 1000 live births and 35.5 per 1000 live births in Rural area and U5MR in Urban area is 26.7 per 1000 live births and 44.2 per 1000 live births in Rural area.

Data on childhood malnutrition rates for Vadodara district show that, the prevalence of stunting is 38.5% in Urban areas V/S 49.1% in Rural areas. Underweight is also high in Rural Vadodara (44.1%) than Urban Vadodara (34.2). Seeing this situation and high risks related to mortality rates in Gujarat and Vadodara, especially more in rural areas. This shows that Rural children are suffering more from nutritional deprivation (NFHS-4, 2015-2016).

As reported in the UNICEF's conceptual framework of (UNICEF Conceptual Framework | UNICEF, 2020) feeding and caring practices are the immediate factors affecting childhood malnutrition.

RATIONALE

The younger children are completely dependent on caregivers for their nutritional needs. It is well documented that knowledge, attitude, and practices (KAP) regarding IYCN is a major factor contributing to dietary quality among children. Parental feeding style is also an important factor influencing feeding practices. There are only a few studies in India to assess the parental feeding practices of children under 2 years of age, especially focusing on Rural areas. As per the prevalence data, rural areas have higher burden of childhood malnutrition as well as childhood mortality rate. This is also reflected in the IYCF practices being suboptimal in Rural areas. The present study was carried out to assess knowledge, attitude, practices, and involvement of the parents in infant and young child feeding and practices in Rural. Hence, the study aims to assess parental feeding styles and diet quality of complementary foods among 6-24 months children in Rural Dabhoi block of Gujarat.

REVIEW OF LITERATURE

FIRST 1000 DAYS OF LIFE - THE CRITICAL WINDOW OF OPPORTUNITY

The first 1000 days of life, from conception to a child's second birthday, is a critical period for establishing optimal growth and development. During this time, rapid cellular division and extensive brain network formation occur, making children highly susceptible to nutritional deficiencies and environmental stressors (Moore et al., 2021). Research consistently demonstrates that adequate nutrition during this period positively influences later-life outcomes, including improved educational attainment and economic success (Victora et al., 2021). Conversely, suboptimal nutrition during this window can lead to irreversible developmental deficits, affecting long-term health and well-being.

Nutrition plays a crucial role not only in physical growth but also in cognitive and socioemotional development. The brain undergoes rapid growth during the first 1000 days, and nutrient deficiencies can impede the formation of neural connections, impacting cognitive abilities, learning capacity, and emotional regulation (Georgieff, 2021). Furthermore, a nurturing environment that provides responsive feeding and emotional support synergistically enhances the positive effects of optimal nutrition, fostering a robust foundation for overall well-being and future success. Research highlights the importance of responsive feeding practices, which promote healthy eating habits and emotional bonding between caregivers and children.

Social and environmental factors, such as maternal mental health and access to clean water, significantly influence child development during the first 1000 days. Disruptions in these areas can lead to delays in social and cognitive milestones (Knudsen et al., 2020). Additionally, the early environment influences the development of the gut microbiome, which plays a crucial role in immune and metabolic development (Moore et al., 2018). Research emphasizes the interconnectedness of nutrition, environment, and social factors in shaping child development, highlighting the need for comprehensive interventions that address multiple determinants of health.

Nutrition plays a crucial role not only in physical growth but also in cognitive and socioemotional development. The brain undergoes rapid growth during the first 1000 days, and nutrient deficiencies can impede the formation of neural connections, impacting cognitive abilities, learning capacity, and emotional regulation (Georgieff, 2021). Furthermore, a nurturing environment that provides responsive feeding and emotional support synergistically enhances the positive effects of optimal nutrition, fostering a robust foundation for overall well-being and future success. Research highlights the importance of responsive feeding practices, which promote healthy eating habits and emotional bonding between caregivers and children.

Nutritional experiences during the first 1000 days play a significant role in metabolic programming, influencing an individual's predisposition to chronic diseases (Lupien et al., 2020). Early nutritional exposures can modulate gene expression and metabolic pathways, affecting the risk of developing conditions such as obesity, type 2 diabetes, and cardiovascular disease later in life. Conversely, a balanced diet during this period supports healthy metabolic function and reduces the likelihood of these adverse outcomes. Research underscores the importance of a balanced macronutrient intake and adequate micronutrient availability to mitigate metabolic programming risks.

IYCF PRACTICES

Infant and Young Child Feeding (IYCF) practices are a set of scientifically established recommendations aimed at optimizing the nutritional status and developmental outcomes of children during the critical developmental window from birth to two years of age. A fundamental recommendation advocates for exclusive breastfeeding up to six months after childbirth, followed by the initiation of complementary feeding while continuing breastfeeding until at least two years of age (Abate et al., 2017; Aguayo et al., 2024).

The World Health Organization (WHO) has established evidence-based guidelines for Infant and Young Child Feeding (IYCF) practices, designed to promote optimal child growth and development. These guidelines are rooted in extensive research demonstrating the profound impact of early nutrition on long-term health (WHO, 2023). A cornerstone recommendation is

the initiation of breastfeeding within the first hour of birth. This practice is crucial because it ensures that newborns receive colostrum, a nutrient-rich "first milk" loaded with maternal antibodies that provide vital immunological protection (Rollins et al., 2016). Research underscores the significance of early breastfeeding initiation in reducing neonatal morbidity and mortality by strengthening the infant's immune system and establishing a healthy gut microbiome (Victora et al., 2016).

Furthermore, WHO and UNICEF emphasize exclusive breastfeeding for the first six months of life, meaning infants receive only breast milk without any additional foods or liquids, including water (WHO & UNICEF, 2021). Studies have consistently shown that exclusive breastfeeding provides optimal nutrition and hydration for infants during this period while reducing the risk of infections, diarrhea, and respiratory illnesses (Dewey et al., 2019). Exclusive breastfeeding supports robust growth and development by supplying a balanced composition of macronutrients, micronutrients, and bioactive factors tailored to the infant's needs. This practice also strengthens the mother-infant bond and supports maternal health through hormonal regulation and reduced postpartum bleeding.

Extending breastfeeding, along with appropriate complementary feeding, is recommended until at least two years of age to continue enhancing health outcomes (WHO, 2017). Complementary foods should be introduced at around six months, alongside continued breastfeeding, to meet the infant’s growing nutritional needs. This dual approach of breastfeeding and complementary feeding ensures infants receive a diverse range of nutrients necessary for optimal growth and cognitive development. Studies demonstrate that prolonged breastfeeding reduces the risk of chronic diseases such as obesity, type 2 diabetes, and cardiovascular diseases later in life (Owen et al., 2019). The benefits of breastfeeding extend beyond infancy, impacting long-term metabolic health and overall well-being. Additionally, appropriate feeding practices during the complementary feeding period, using diverse and nutrient rich foods, enhances development and growth.

Complementary feeding, defined as the introduction of appropriate solid foods alongside continued breastfeeding, typically begins at six months of age. This stage is crucial as it plays an instrumental role in the physical and cognitive development of the child. Research shows

that the growth rate of the brain is among the highest during these early years, and thus precise dietary interventions during this time can yield significant benefits or detrimental consequences related to nutrient intake. Complementary feeding must not only focus on providing adequate nutrients but also consider the prevention of excessive calorie intake, salts, sugars, and unhealthy fats that could negatively impact health.

Moreover, feeding practices transcend mere nutrition; they are critical in shaping behavior, fostering autonomy, and establishing long-term eating habits. To effectively address the nutritional and developmental needs of young children, the WHO has identified twelve essential areas for updating global recommendations, including:

1. Age of Introduction of Complementary Foods: Appropriate timing is crucial, as introducing foods too early or late can hinder nutritional benefits.
2. Continued Breastfeeding: Emphasis on the importance of breastfeeding beyond six months to provide ongoing nutritional support.
3. Responsive Feeding Techniques: Encouraging caregivers to be attentive to the child's hunger and fullness cues, thereby promoting healthy eating patterns.
4. Safe Preparation and Storage of Foods: Ensuring that complementary foods are prepared hygienically and stored correctly to prevent contamination.
5. Food Textures and Flavors: Gradually adjusting food textures and introducing diverse flavors to enhance acceptance and enjoyment of various foods.
6. Dietary Energy and Frequency of Meals: Advocating for an appropriate number of meals and snacks to meet a child's energy needs throughout the day.
7. Nutrient Composition: Balancing energy sources, including fats, proteins, and carbohydrates, is essential for sustaining growth.
8. Dietary Diversity: Encouraging a varied diet that spans multiple food groups to ensure essential micronutrient intake through grains, legumes, fruits, vegetables, and animal-source foods.
9. Food Consistency and Preparation Methods: Ensuring that food is provided in a safe and age-appropriate manner.
10. Hydration Needs: Recognizing the importance of fluid intake and hydration as part of a child's diet.

11. Limitations on Unhealthy Foods and Beverages: Addressing the need to reduce the intake of high-calorie, low-nutrient foods that may contribute to obesity.
12. Vitamin and Mineral Supplementation: Identifying when and how to use supplements or supplementary foods to address specific nutritional deficiencies.

The WHO's IYCF recommendations, articulated in detail in their 2009 guidelines, provide a framework that supports survival, growth, and development during the first 1000 days of life. Adhering to these practices correlates directly with lower morbidity and mortality rates, particularly from infectious diseases, as they bolster the infant's immune system while delivering vital nutrients (Dewey & Adu-Afarwuah, 2008). Furthermore, appropriate IYCF practices play a significant role in cognitive development; optimal nutrition during this formative period fosters adequate brain growth and function, ultimately influencing long-term educational outcomes and productivity (Grantham-McGregor et al., 2007). In resource-limited settings, where the prevalence of undernutrition is a pressing concern, the consistent application of IYCF guidelines is critical for alleviating the adverse effects of malnutrition and promoting healthy developmental results (Dewey & Adu-Afarwuah, 2008). By prioritizing IYCF practices, we not only enhance individual health outcomes but also contribute to broader societal benefits through improved developmental trajectories and economic productivity.

Globally, the practice of exclusive breastfeeding for the initial two days following birth remains insufficient among mothers, with only 65% of mothers with young children adhering to this vital health guideline. In South Asia, the situation is similarly troubling, where nearly 35% of infants are introduced to substances other than breast milk during this critical period. While national statistics indicate that children are often exclusively breastfed until they reach five months of age, many are introduced to supplementary foods and liquids earlier than recommended. This early introduction can be attributed to several factors, including a lack of adequate knowledge about breastfeeding benefits, prevailing cultural beliefs that may discourage exclusive breastfeeding, and the widespread practice of inadequate breastfeeding techniques among mothers. Alarmingly, the range of processed and ultra-processed foods provided to infants is increasingly extensive, with fruit juices and processed bread being among the most commonly offered items, further straying from recommended dietary practices (UNICEF, 2021).

A study investigating the disparities in early initiation of breastfeeding and the practice of prelacteal feeding across 86 low- and middle-income countries reveals a complex landscape regarding breastfeeding practices in these regions. While some areas have shown improvements in exclusive breastfeeding rates up to six months, significant disparities persist among different socioeconomic and geographic groups. Notably, in upper-middle-income countries, there is a concerning trend towards an increase in formula feeding, particularly among affluent families. These wealthier families not only demonstrate a marked decline in the duration of breastfeeding as their children age, but they also exhibit a higher overall consumption of breast milk substitutes throughout early childhood. This shift underscores the critical influence of various country-level factors ranging from economic conditions to healthcare policies on the consumption of breast milk substitutes, highlighting an urgent need for targeted interventions aimed at promoting optimal breastfeeding practices tailored to the diverse cultural and socioeconomic contexts within these nations (Neves et al., 2022).

A research conducted in the United Arab Emirates revealed striking insights into infant feeding practices. Remarkably, 99.4% of children were found to have received early initiation of breastfeeding. However, the data presented a different scenario regarding exclusive breastfeeding, with only 32.9% of infants exclusively breastfeeding for the crucial first six months of life (Hashim M et al., 2025).

FOOD CONSUMPTION (DIET DIVERSITY)

When examining complementary feeding patterns, the study highlighted that an impressive 96.4% of infants began receiving complementary foods between the ages of 6 to 8 months. As the months progressed, the figures showed that 68.7% of children were still breastfeeding by the age of 12 months, while 44.7% continued this nourishing practice at 18 months. Yet, concerning gaps in dietary practices persisted at the 18-month mark. Only 40.4% of children achieved Minimum Dietary Diversity (MDD), 56.7% met Minimum Meal Frequency (MMF), and a troubling 23.1% obtained a Minimum Acceptable Diet (MAD). Furthermore, it was alarming to note that 26.9% of infants consumed sugar-sweetened beverages, 28.8% had no access to fruits or vegetables, and 65.4% included unhealthy foods in their diets. Upon further analysis, the study found that multiparous mothers, those with multiple previous pregnancies,

had significantly higher odds of practising exclusive breastfeeding. Conversely, complications during pregnancy were linked to a decreased likelihood of exclusive breastfeeding. Continued breastfeeding at 18 months correlated positively with older maternal age and lower household income. Additionally, factors influencing complementary feeding indicators included increased physical activity and the attainment of Minimum Dietary Diversity. Worryingly, Gestational Diabetes Mellitus, the consumption of sugar-sweetened beverages, and higher educational attainment were all associated with lower odds of children consuming vegetables and fruits, while families with higher incomes reported lower consumption of unhealthy foods. These identified risk factors for suboptimal feeding practices provide a crucial foundation for guiding targeted nutrition interventions and informing public health strategies in the United Arab Emirates (Hashim M et al., 2025).

In a contrasting yet equally revealing narrative review by Khandelwal S et al. (2022), the prevalence of breastfeeding practices across 57 low- and middle-income countries was assessed, only 51.9% of infants experienced early initiation of breastfeeding, while exclusive breastfeeding for the first six months was reported at 45.7%. Continued breastfeeding at the age of one year was more favorable, with 83.1% of infants participating. Notably, a mere 8.5% of children were offered prelacteals, with honey and sugar water frequently among the early foods introduced. These practices reflected deeply rooted traditional beliefs held by families. Alarmingly, the review indicated that a significant 33.8% of children had not been introduced to any fruits or vegetables by their first birthday. Moreover, a majority of infants, approximately 85.8%, were reported to have been fed at least some unhealthy foods. The study highlighted that a little over half, or 57.4%, of children aged one year achieved Minimum Dietary Diversity, while a commendable 94.4% met the Minimum Meal Frequency (MMF) criteria. However, concerningly, only 21.3%, 56.2%, and 10.1% of the 80 low- and middle-income countries with data on Infant and Young Child Feeding (IYCF) managed to achieve prevalence levels exceeding 50% for MDD, MMF, and MAD among children aged 6 to 23 months, respectively. While an impressive 94.4% of infants met the minimum meal frequency, the data underscored a critical gap, with only 55% receiving a minimum acceptable diet (MAD) (Khandelwal S et al., 2022).

In a recent systematic review and meta-analysis by Kianian et al. (2023), significant disparities in breastfeeding practices were uncovered across various African regions, shedding light on both successes and challenges in maternal and child health. The study found that the overall prevalence of ever breastfeeding was remarkably high at 96.6%. Additionally, 81.2% of mothers initiated breastfeeding within the first vital hour after childbirth, a crucial factor in promoting infant health. Exclusive breastfeeding among infants aged 0-5 months was reported at 76.9%, highlighting a commendable effort in nurturing early-stage infants. Furthermore, continued breastfeeding rates for children aged 12-23 months stood at 75.0%, showcasing a sustained commitment to breastfeeding as the child grows. However, regional differences were striking. East and Southern Africa (ESA) exhibited notably higher rates of both early initiation and exclusive breastfeeding compared to their West and Central African (WCA) counterparts, indicating varying cultural and systemic influences on maternal practices. In contrast, complementary feeding practices fell short of ideal levels, with only 51.8% of infants receiving timely introductions of solid and semi-solid foods, and a mere 16.1% indulging in flesh foods. Disturbingly, the review also highlighted significant vulnerabilities faced by refugee children, showing marked differences in breastfeeding and feeding practices between refugee and host populations.

Further emphasizing the challenges, a cross-sectional study conducted in Ado-Ekiti, Nigeria, assessed the complementary feeding patterns among mothers of children aged 0-2 years. The results painted a concerning picture, revealing that a substantial 62.5% of infants were introduced to complementary foods earlier than recommended, between 3-5 months. Water emerged as a prevalent initial feed for infants, utilized by 43.3% of mothers at just 3 months old. Formula feeding made up a significant part of these infants' diets during the introduction of complementary foods, comprising 45.9%, followed by semi-solid foods at 37%. Alarmingly, the study reported very low consumption rates of iron-rich foods and fruits (15.1% and 11%, respectively) among infants aged 6-12 months, contrasting starkly with the slightly higher semi-solid food consumption at 23.8%. (Esan et al., 2022).

A study done by Ahmad et al. (2018) conducted a cross-sectional analysis in Swat District, Pakistan, examining complementary feeding practices alongside the nutritional status of children aged 6-23 months. The findings revealed a troubling picture of undernutrition, with

26% of the children classified as underweight, 23% suffering from wasting, and 28% exhibiting stunting. These alarming statistics were accompanied by suboptimal complementary feeding practices, underlining a pressing need for intervention. Multivariate analysis further illuminated the significant associations between adverse nutritional outcomes and factors such as child age, birth order, parental education levels, family size, and the prevalence of febrile illnesses and diarrheal episodes. This compelling evidence illustrates the urgent necessity for targeted strategies designed to enhance complementary feeding practices and combat undernutrition within this vulnerable demographic. (Ahmad A et al., 2018).

Research on dietary diversity has revealed concerning trends regarding the nutritional habits of children globally, particularly for those aged 6 to 24 months. According to UNICEF (2021), a limited variety of foods in diets is often linked to insufficient consumption of fruits and vegetables, which ultimately results in poor-quality diets for this vulnerable age group. While rates of continued breastfeeding remain relatively high, the frequency of meals provided to children is alarmingly low. Furthermore, there is a notable deficiency in the intake of essential protein sources, such as eggs, fish, and meat. Compounding these issues is the increasing trend in the consumption of unhealthy processed foods, including snacks, sweets, soft drinks, instant noodles, and biscuits. This dietary shift is particularly pronounced among Indian children aged 6 to 24 months (Agarwal et al., 2021), who are becoming more reliant on these calorie-dense but nutrient-poor options.

In a study conducted in rural Bangladesh, Momin et al. (2021) found that a substantial 73% of mothers initiated complementary feeding for their infants between the ages of 5 and 6 months, as recommended. While most children aged 12 to 24 months did consume foods from the five suggested food groups, the actual intake levels frequently fell short of the established nutritional guidelines. This shortfall was particularly evident in the consumption of fruits and dairy products, which are vital for cognitive and physical development. Alarmingly, the study reported that 42% of children between 12 to 18 months, and 33% of those aged 18 to 24 months, did not consume any unsaturated fats or oils, which are crucial for healthy growth. Despite a high overall reported consumption of meats and alternatives (90% of children), the portion sizes were consistently below the recommended servings, raising concerns about potential nutrient deficiencies and inadequate protein intake.

Additionally, a cross-sectional analysis utilizing data from the 2017 Indonesia Demographic and Health Survey documented that the prevalence rates for Minimum Meal Frequency (MMF), Minimum Dietary Diversity (MDD), and Minimum Acceptable Diet (MAD) among Indonesian children were 71.14%, 53.95%, and 28.13%, respectively. These figures indicate a troubling reality: while a majority of children achieved minimum meal frequency, the levels of dietary diversity and acceptable dietary quality were distinctly low. This underscores the urgent need for strategic interventions aimed at improving dietary diversity, promoting the consumption of healthy foods, and ultimately enhancing the nutritional welfare of children in these regions (Yunitasari E et al., 2022).

Research studies conducted across various regions of the globe reveal a concerning reality: the quality of breastfeeding and complementary feeding practices remains far from optimal. These practices exhibit notable disparities, often correlating with the economic conditions of different communities. Overall, the prevalence of inadequate breastfeeding methods and the insufficient nutritional value of complementary foods pose significant challenges worldwide. These poor practices not only jeopardize the nutritional status and well-being of children but also have profound implications for the future development of nations. The consequences are palpable, influencing not only individual health outcomes but also broader societal progress. Thus, research studies conducted in different parts of World show that the status of breast feeding as well as complementary feeding practices is still sub-optimal throughout the World. There are disparities in the practices due to economic status. But overall poor practices including inappropriate breast-feeding practices combined with compromised dietary adequacy of complementary foods is a major challenge faced by the World. This affects the nutritional status and wellbeing of children influencing the development of nations.

The National Family Health Survey-5 (NFHS-5) reveals a mixed picture of Infant and Young Child Feeding (IYCF) practices across India. While early breastfeeding initiation is relatively common, with approximately 63.7% of births seeing initiation within the first hour, exclusive breastfeeding for the first six months falls short, at 58.7%. Complementary feeding practices are particularly concerning, with only 42.6% of children aged 6-23 months receiving an adequate diet and a mere 6.4% achieving a minimum acceptable diet. Dietary diversity is also low, with only 20.9% of children in this age group meeting minimum standards. These findings

highlight significant regional disparities and the urgent need for targeted public health interventions to improve infant and young child nutritional outcomes nationwide.

In Gujarat, as indicated by the NFHS-5 data, early breastfeeding initiation shows promising results, with approximately 80% of mothers initiating breastfeeding within one hour of birth. However, exclusive breastfeeding for the first six months is practiced by only about 65% of mothers, indicating a gap in adherence to recommended guidelines. Complementary feeding practices are also suboptimal, with only around 25% of children aged 6-23 months receiving minimum dietary diversity and only 10% receiving a minimum acceptable diet. The data for Vadodara indicates even lower rates. These findings underscore the necessity for focused interventions in Gujarat, and Vadodara specifically, to address the deficiencies in exclusive breastfeeding and complementary feeding practices, aiming to improve the overall nutritional status of infants and young children in the region.

KAP OF PARENTAL FEEDING STYLES

In a comprehensive cross-sectional study conducted by Chand et al. (2020) in the Alwar district of Rajasthan, researchers aimed to evaluate the knowledge, attitudes, and practices (KAP) surrounding optimal breastfeeding behaviours among mothers. Interestingly, while a notable 81.9% of births occurred in healthcare facilities, only a meagre 29.7% of infants were breastfed within the critical first hour after birth. Exclusive breastfeeding (EBF) for the recommended six months was reported by 55% of the participating mothers. The study revealed that mothers held various attitudes towards breastfeeding: a significant 73.8% expressed positive sentiments towards the timely initiation of breastfeeding (EIBF), 13.5% favoured exclusive breastfeeding, and a robust 79.5% supported continued breastfeeding beyond six months. However, knowledge levels varied significantly among participants, with only 34.3% aware of the importance of EIBF, 34.6% understanding the benefits of EBF, and a better 65.5% knowledgeable about continued breastfeeding. Support from family, particularly from mothers-in-law, was a noteworthy factor, with 64.8% of mothers receiving this assistance during their breastfeeding journey. Remarkably, an overwhelming 95% of infants were provided with colostrum, reflecting a positive understanding of its vital health benefits. Despite this, some concerning practices emerged; for instance, 23.08% of mothers introduced animal

milk, 1.9% offered juice, 5.7% provided semi-solid foods, and a substantial 42.3% gave other prelacteal feeds before the six-month mark. Additionally, 46.1% of infants were given water when separated from their mothers for over two hours, indicating notable deviations from best breastfeeding practices.

In a descriptive cross-sectional study conducted in Gujarat, findings depicted that 94.2% of children were initiated into breastfeeding within the first hour of life, and only 4.2% were given prelacteal feeds. A striking 95% of children were exclusively breastfed for the full six months. Most of the mothers (59.8%) started complementary feeding precisely at the completion of six months. However, the study found that slightly more than one-fourth (28.3%) of children aged between 6 to 23 months were nourished from four or more diverse food groups, while a concerning 71.7% received less than four. Adequate Minimum Meal Frequency (MMF) was observed in a commendable 95.6% of cases, yet only 28.3% of children met the criteria for a Minimum Acceptable Diet (MAD) as documented by Chandwani H et al. (2015).

A comprehensive study conducted in the rural regions of Ahmedabad city, Gujarat, revealed that 50% of children were given jaggery as a pre-lacteal feed. This practice was even more pronounced in strictly rural areas, where the prevalence rose to 53%. The primary belief behind this widespread practice was identified as the belief that jaggery facilitates the expulsion of meconium, endorsed by 52% of caregivers, and adherence to family traditions, cited by 31%. Additionally, 17% of caregivers indicated that their decision was influenced by recommendations from family members. Alarmingly, the research found that 42% of under-five children in these rural areas experienced delays in the initiation of breastfeeding, which is critical for ensuring optimal health and nutrition. The findings also hinted at a concerning correlation between the frequent occurrence of acute illnesses among under-five children and undernutrition within this demographic. This underscores the persistence of traditional, non-evidence-based feeding practices, which may significantly hinder optimal infant and child nutrition in the region (Rastogi S & Lala MK, 2024).

In a parallel examination of pre-lacteal feeding practices within the urban slums of Ahmedabad, the study noted that 45% of under-five children received jaggery as a pre-lacteal feed, a slightly lower figure compared to the 53% observed in rural settings. Among urban caregivers, only 22% perceived that jaggery aids in meconium expulsion, highlighting a

notable difference in beliefs compared to the rural population. However, in the urban context, family traditions played a more substantial role in influencing these practices, comprising 55% of the reasons for pre-lacteal feeding, a stark contrast to the 31% noted in rural areas. Furthermore, urban caregivers reported receiving advice from family members at a slightly higher rate of 23% compared to 17% in rural communities. Encouragingly, the study observed that immediate initiation of breastfeeding was markedly more prevalent in urban settings, with only 7.5% of children experiencing delays, a significant improvement over the 42% delay rate observed in rural areas. Similar to the rural findings, the research suggested a potential link between frequent acute illnesses and undernutrition among under-five children in the urban population. These comparative insights highlight the diverse sociocultural factors at play that shape pre-lacteal and breastfeeding practices across the contrasting environments of rural and urban Ahmedabad, raising important considerations for targeting interventions to improve infant and young child nutrition in these communities (Rastogi S & Lala MK, 2024).

A comprehensive study aimed at elucidating the knowledge, attitudes, and practices surrounding complementary feeding among mothers in Waghodia Taluka of Vadodara, Gujarat, revealed some concerning trends. Approximately 58% of mothers reported that they fed their children fewer than five times a day, which raises significant concerns about nutritional adequacy. Notably, three-fourths of these mothers chose to feed their children independently, but a striking 17% were unaware of essential hygiene measures that are critical during feeding. Furthermore, about 44.4% of children were introduced to dairy products, such as cow's milk, highlighting a particular focus on specific food groups. Alarmingly, mothers identified prevalent health issues connected to insufficient nutrition, citing vomiting in 22% of cases and diarrhea in 30%. The analysis also pointed to a troubling link between improper feeding practices and the educational background of mothers. Overall, the study revealed that both knowledge about essential hygiene practices and awareness of illnesses related to inadequate feeding were alarmingly low, indicating a clear need for targeted interventions (Trivedi B. et al., 2015).

A cross-sectional study conducted in rural Vadodara district examined mothers' knowledge and practices regarding complementary feeding, revealing significant challenges. The study found that a majority of mothers possessed inadequate knowledge, with only 14.2% demonstrating a

robust understanding of complementary feeding practices. Specifically, 48.3% exhibited average knowledge, while a substantial 37.5% demonstrated poor knowledge. Correspondingly, the implementation of adequate complementary feeding practices was low. Only 19.2% of mothers reported adequate practices, while 57.5% reported moderate practices, and 23.3% reported poor practices (Chauhan Rr & Pattan Ad, 2024). Furthermore, correlation analysis revealed a very weak positive relationship between maternal knowledge and the actual implementation of complementary feeding practices. This suggests that increased knowledge alone does not reliably translate into improved feeding behaviors among mothers in this rural population (Chauhan Rr & Pattan Ad, 2024).

Research findings consistently highlight inadequate Infant and Young Child Feeding (IYCF) practices across Gujarat, with a notable deficiency in complementary feeding. This pattern is particularly evident in rural Vadodara, suggesting that rural populations face greater challenges in implementing optimal IYCF practices compared to urban areas. The prevalence of suboptimal feeding practices necessitates targeted interventions to improve child nutrition. Effective interventions require a comprehensive understanding of parental knowledge, attitudes, and feeding styles. Addressing these factors is crucial for promoting healthier dietary habits and improving nutritional outcomes among children in these communities (Chauhan Rr & Pattan Ad, 2024; NFHS-5).

PARENTAL FEEDING STYLES

The approach to parenting adopted by caregivers plays a pivotal role in shaping the growth and development of young children. During the crucial stage of infancy and childhood, malnutrition can have lasting, irreversible effects on a child’s health and development; therefore, children must receive high-quality food. Research indicates that there is a direct link between parenting styles and nutritional outcomes, with better parenting correlating to enhanced nutritional status in children. This connection becomes evident when examining the quality and quantity of food provided to children under 2 years.

A descriptive qualitative study, with a cross-sectional design, conducted in the city of Bandung, West Java Province, to explore the significant impact of fathers' involvement in

supplying complementary foods on the incidence of stunting among young children focuses on mothers and fathers who have children aged 6 to 24 months, utilizing a random sampling method to ensure a diverse representation. The results reveal a concerning nutritional landscape: a staggering 61.8% of children in the study demonstrate stunted growth, while only 38.2% maintain a normal nutritional status. This finding underscores the necessity of examining father's commitment and participation in the nutritional intake of their children. Astonishingly, only 35.3% of fathers actively engage in providing complementary foods, leaving a significant 64.7% uninvolved in this vital aspect of their children's diet. This indicates a pattern where many fathers prioritize work and external commitments over their responsibility for nutritional support at home. Various risk factors contribute to stunting in toddlers, including the educational background of parents, local food processing practices, parental knowledge regarding nutrition, the influence of health resources, and the degree of support from fathers. Among these, paternal involvement emerges as the most strongly correlated factor with the incidence of stunting. The role of fathers extends beyond mere economic provision; they are essential participants in parenting. Their involvement characterized by the quality of time spent, meaningful interactions, and attentiveness towards their children can yield significant positive impacts on children's cognitive development. Studies, including those by Lolan et al. 2023, highlight the critical importance of fathers in fostering a nurturing environment that supports holistic growth during these formative years.

In the year 2001, the World Health Organization (WHO) released a comprehensive set of guidelines centred on infant feeding practices, highlighting the importance of introducing nutritious complementary foods at the pivotal age of 6 months. This recommendation encourages parents to offer their infants a diverse array of flavors and textures, with a particular focus on incorporating foods rich in iron to support healthy development. The guidelines carefully advise against the introduction of added salt and emphasize the avoidance of sugary or honey-laden foods, protecting infants from early taste preferences that could lead to unhealthy eating habits. Several key factors informed the selection of first foods, including the consistency of the foods, the cultural and personal food preferences of parents, as well as their culinary skills. Notably, mothers often played a significant role in shaping the dietary experiences of their infants, guided by personal tastes and preferences. This led to a scenario

where foods believed tasty by mothers were eagerly incorporated into their infant's diets, while those that were less favoured were typically excluded. Parents shared their experiences regarding the positive impacts of offering a diverse range of foods, the benefits of repeated exposure to new flavors, and the advantages of baby-led weaning practices that were believed to foster healthier food habits on the long run (Spyreli et al., 2021).

At the family level, the formation of healthy eating behaviours begins early in childhood, intricately linked to how families navigate the various developmental stages of feeding. Research into the home feeding environments for young children has provided valuable insights into the collaborative relationships between mothers and fathers as they address feeding issues. A qualitative study focusing on co-parenting within infant feeding practices revealed significant themes regarding the dynamics of satisfaction, support, consensus, and conflict that arise during the critical feeding periods between 6 to 36 months. The study further highlighted how factors such as the presence of older siblings and parental work schedules influence the strategies both parents employ in navigating feeding responsibilities. Throughout this exploration, it became clear that mothers often took on the primary responsibility for managing feeding efforts, while fathers initially engaged in feeding at varying levels, gradually increasing their involvement as their children grew. This shift necessitated ongoing negotiations around co-parenting related to feeding practices. Overall, the study sheds light on how multiple caregivers collaboratively construct a family feeding environment, offering a perspective that has been overlooked in existing discussions on home feeding dynamics. Emphasizing the importance of co-parenting in the context of feeding may pave the way for more effective interventions aimed at addressing childhood obesity and promoting family health as a whole (Thullen et al., 2016).

The infant feeding practices among South African mothers residing in Soweto, South Africa, reveal a complex interplay of cultural beliefs and health outcomes. Through semi-structured focus group discussions and in-depth interviews with mothers of children aged 0-2 years, researchers identified a clear understanding among mothers regarding the benefits of breastfeeding. However, despite this awareness, the duration of exclusive breastfeeding reported was notably short.

Moreover, the diversity and nutritional quality of weaning foods offered to infants were strikingly low, with an alarming tendency for junk food to be included in their diets. Feeding practices often involved the use of bottles or spoons, and mealtimes for infants were frequently separate from family meals, leading to distressing instances where mothers felt compelled to force-feed their babies. Additionally, many mothers held the belief that introducing solid foods to infants before the age of six months was essential for their development (Wrottesley et al., 2021).

Another study explored the moderating role of father's support in complementary feeding within the context of maternal decision-making autonomy, specifically regarding the World Health Organization's complementary feeding indicators, including minimum dietary diversity (MDD), minimum meal frequency (MMF), and minimum acceptable diet (MAD). Conducted as a cross-sectional study, this research involved 495 parents of children aged 6-23 months in Kaduna State, Nigeria. The findings indicated no significant moderation effects for minimum dietary diversity or for feeding children eggs the previous day. Parent assessments suggested that maternal autonomy was perceived positively by 57.6% to 76.0% of respondents, while evaluations of paternal complementary feeding support ranged between 52.1% to 89.1% (Allotey et al., 2022).

Nutrition is foundational to a child's growth and development, with age-appropriate feeding practices known to enhance well-being and mitigate the risk of various health issues. In a health-based prospective observational study conducted in a tertiary care hospital, researchers examined children aged 1-2 years and found that the prevalence of exclusive breastfeeding (EBF) reached 73.68%. Most notably, a significant majority of parents 90.53% initiated complementary feeding at the recommended age of six months. However, only 45.26% of the children were consuming an adequate quantity of complementary foods, highlighting a critical area for improvement in nutritional practices (Ganesan et al., 2021).

In the comprehensive study performed by Iyer et al. (2024) conducted a thematic analysis of qualitative data, which uncovered four salient themes that encapsulate the complexities of mother's feeding choices and perceptions:

1. Mothers' Feeding Choices: The decisions surrounding breastfeeding, formula feeding, and the introduction of solid foods were deeply influenced by each other's personal beliefs and values. Factors such as convenience, awareness, and access to reliable information significantly shaped these choices, highlighting the multifaceted nature of maternal feeding practices.

2. Mother's Perceptions of their Children's Diet: The way mothers perceive the adequacy of their children's diets is intricately linked to a mix of cultural norms, professional guidance from healthcare practitioners, and their own lived experiences. These perceptions reflect broader societal expectations and personal reflections on nutrition and well-being.

3. Influences on Feeding Choices: The role of social dynamics emerged as a crucial influence on feeding decisions. Mothers often relied on the support of social networks friends, family, and other parents while also considering insights from healthcare professionals and the weight of familial traditions. This interplay of influences underscores the communal aspect of parenting and nutrition.

4. Mother's Personal Experiences: The feeding practices mothers adopt are frequently rooted in their past experiences, including their own childhood upbringing. These deeply personal histories shape their approaches to their children's nutrition, revealing how past feeding experiences can resonate through generations and inform contemporary choices.

Research indicates that parental feeding styles in rural Gujarat are characterized by a blend of traditional practices and socioeconomic constraints, significantly impacting child nutritional outcomes. Studies have observed a prevalence of authoritarian feeding styles, where parents exhibit high control over food choices and intake, often driven by cultural norms and perceived nutritional needs (Bhatia et al., 2018). This approach, while rooted in good intentions, may limit children's autonomy in self-regulating their food consumption, potentially leading to issues with recognizing hunger and satiety cues. Furthermore, the influence of traditional beliefs about food and health often shapes feeding decisions, sometimes prioritizing cultural practices over evidence-based nutritional guidelines (Desai & Patel, 2020).

Socioeconomic factors, particularly poverty and limited access to diverse food sources, play a crucial role in shaping feeding behaviors. Studies highlight that food insecurity and reliance on staple grains can restrict dietary variety, leading to micronutrient deficiencies in children (Sharma & Kumar, 2019). Additionally, parental education levels demonstrate a correlation with feeding practices; lower levels of education are often associated with less awareness of optimal child nutrition and feeding strategies. The heavy workload endured by many rural Gujarati mothers, balancing agricultural work with domestic duties, further limits their capacity for responsive and attentive feeding (Mehta et al., 2021).

Interventions addressing child malnutrition in rural Gujarat necessitate culturally sensitive approaches that acknowledge the interplay of these factors. Research emphasizes the importance of community-based programs that provide education on responsive feeding, balanced diets, and hygiene practices, tailored to the specific context of rural Gujarati communities (Patel & Shah, 2022). Empowering mothers with nutritional knowledge and promoting access to diverse and nutritious food sources are crucial components of effective interventions. Ultimately, fostering positive changes in parental feeding styles requires a multi-pronged strategy that addresses both the immediate nutritional needs of children and the underlying socioeconomic and cultural determinants of feeding behavior.

This extensive investigation reveals a complicated framework of factors that influence mothers' views regarding the nutrition of their children in addition to the decision-making procedures that underlay feeding practices.

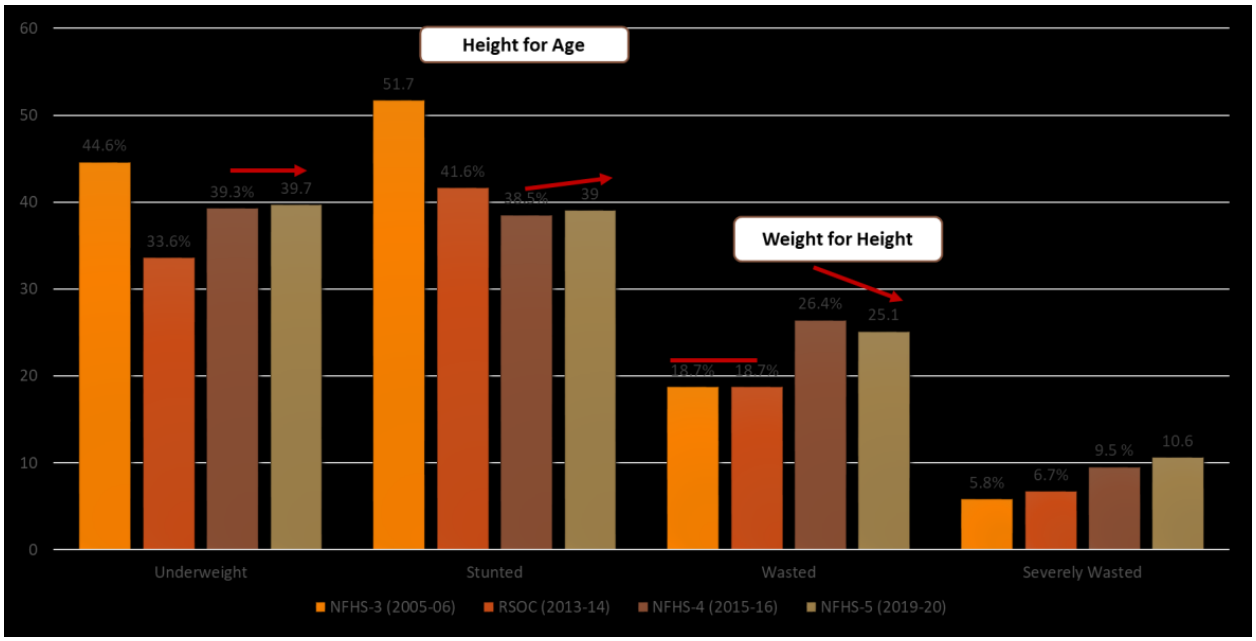
MALNUTRITION

Malnutrition encompasses a range of nutritional disorders characterized by imbalances, deficiencies, or excesses in an individual's intake of essential energy and nutrients. It can be broadly classified into two categories: Undernutrition and Overnutrition. Undernutrition manifests in various forms, including wasting, which is defined as having a low weight relative to height, stunting, indicative of insufficient height for age, and underweight, reflecting overall low weight for age. This category also encompasses micronutrient-related malnutrition, where individuals may suffer from either a deficiency of vital vitamins and minerals or, conversely, excessive intake of certain nutrients. On the other hand, Overnutrition involves conditions such

as being overweight and obesity, which can lead to a host of diet-related non-communicable diseases. These diseases include serious health issues like heart disease, stroke, diabetes, and certain types of cancer. The World Health Organization (WHO, 2024) highlights the critical impact of malnutrition on global health, emphasizing the importance of addressing both ends of the nutrition spectrum to promote optimal health and well-being.

Child malnutrition manifests as acute or chronic undernutrition. Wasting (low weight-for-height) results from short-term inadequate nutrition, increasing mortality risk, while stunting (low height-for-age) indicates long-term deficiencies, leading to irreversible physical and cognitive impairments. Conversely, childhood overweight and obesity are rising due to an imbalance between energy intake and expenditure. Body Mass Index (BMI) helps classify weight status, with early-life obesity increasing the risk of non-communicable diseases (NCDs) such as diabetes, hypertension, and heart disease. Unhealthy dietary shifts high sugar and processed food intake, coupled with low physical activity are major contributors to NCDs, emphasizing the need for proper dietary interventions to reduce health risks (WHO, 2024).

FIGURE 2. 1: PREVALENCE OF MALNUTRITION



(Source: UNICEF 2024)

Moreover, the Global Nutrition Report of 2020 reveals stark inequalities in the rates of stunting, wasting, and overweight among children under the age of five. It shows that stunting and wasting are more prevalent among children residing in rural areas and those with mothers who have lower levels of education, indicating a critical need for targeted interventions. In contrast, the prevalence of overweight is more pronounced among children living in urban settings and those with mothers who possess higher educational attainment. Even in predominantly low- and lower-middle-income contexts, disparities tied to wealth, location, and education remain pronounced and impactful (GNR, 2020).

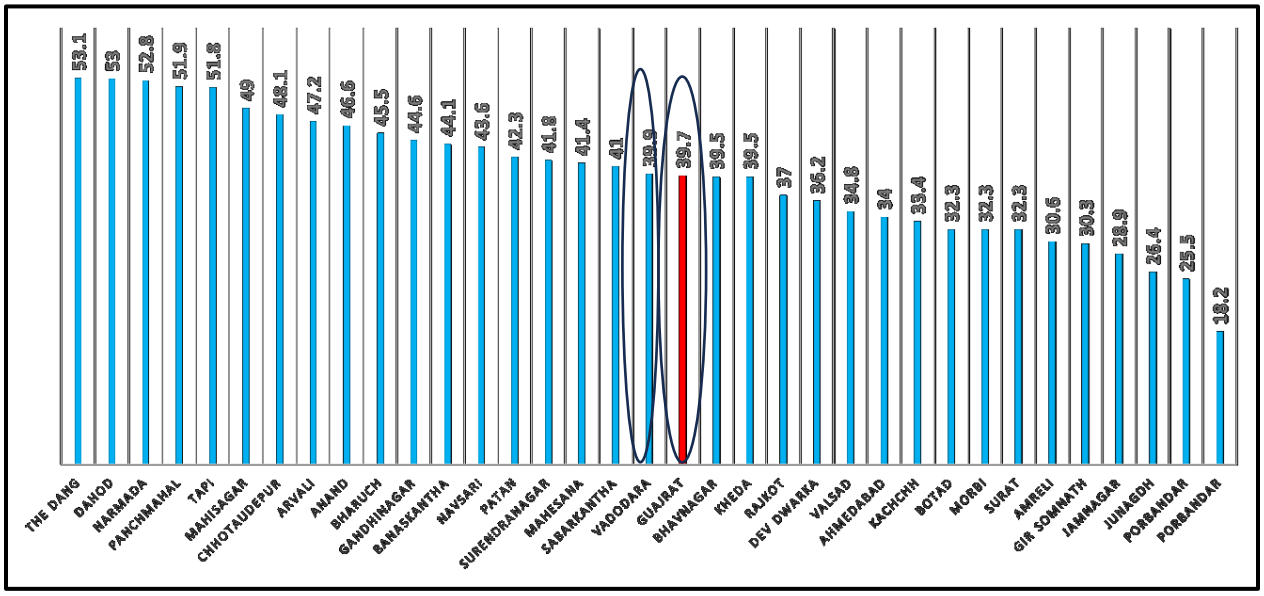
Malnutrition- consisting of undernutrition, overweight and obesity, and micronutrient deficiencies- continues to afflict millions of women and children, particularly in low-income and middle-income countries (LMICs). Maternal and child nutrition, evidence of the ten recommended interventions has increased, along with evidence of newer interventions. The effectiveness of antenatal multiple micronutrient supplementation in reducing the risk of low birth weight, stillbirths, and small-for-gestational-age newborns has strengthened. Evidence continues to support the provision of supplementary food in food-insecure settings and community-based approaches with the use of locally produced supplementary and therapeutic food to manage children with acute malnutrition. Although there is minimal data from LMICs, integrated interventions such as food, exercise, and behavioral therapy are the most beneficial for managing and preventing pediatric obesity (Keats et al., 2021).

Child malnutrition in South Africa is influenced by cultural, social, economic, and food practices, with primary healthcare providers playing a crucial role in screening, early detection, and management. Malnutrition results from both nutritional deficiencies and excessive calorie intake, affecting children under five through morbidity, mortality, and impaired cognitive and physical development. Malnutrition arises from multiple factors, including food availability, accessibility, and utilization. Nutrition-specific causes include poor dietary intake, inadequate caregiving, and improper feeding practices, while nutrition-sensitive factors involve food insecurity and economic constraints at individual, household, and community levels. Individual risk factors include age, gender, birth weight, breastfeeding status, maternal education, and early pregnancy.

The WHO classifies malnutrition using anthropometric indicators:

- Stunting (low height-for-age) reflects chronic undernutrition.
- Wasting (low weight-for-height) indicates acute malnutrition.
- Underweight (low weight-for-age) signals both acute and chronic malnutrition.
- These indicators are measured and compared as standard deviation units "Z-scores" from the median of the reference population.

FIGURE 2. 2: REGIONAL PREVALENCE OF MALNUTRITION



Malnutrition remains a major global health issue, affecting women and children, especially in low- and middle-income countries (LMICs). It includes undernutrition, overweight, obesity, and micronutrient deficiencies. Recent research highlights ten key nutrition interventions to address this crisis. Antenatal multiple micronutrient supplementation has been shown to reduce low birth weight, stillbirths, and small-for-gestational-age births. Additionally, providing supplementary food in food-insecure areas and using locally sourced therapeutic foods in community programs effectively combat acute malnutrition in children. These strategies are essential for improving maternal and child nutrition worldwide.

This study delves into the multifaceted nature of malnutrition among children, investigating the various types and underlying causes, while proposing effective interventions at the primary

healthcare level. Malnutrition manifests as a health condition rooted in the consumption of either inadequate nutrition or excessive calories, carbohydrates, vitamins, proteins, or minerals, causing a wide array of health challenges. Child malnutrition, particularly among those under five years of age, significantly influences cultural, social, economic, and communal food practices, creating a ripple effect that impacts overall community health.

Primary healthcare providers are instrumental in this context, playing a crucial role in screening for malnutrition, facilitating early identification, making appropriate referrals, and managing the integrated treatment of malnutrition in children under five. The harsh realities of food insecurity render malnutrition the most severe consequence for this vulnerable demographic. Acute malnutrition, in particular, poses serious risks, leading to heightened morbidity, mortality, and long-lasting disabilities, while also jeopardizing cognitive and physical development and increasing susceptibility to concurrent infections.

The complex interplay of factors contributing to malnutrition in children under five years of age includes the availability, accessibility, and effective utilization of food and healthcare services. Nutrition-specific determinants often encompass inadequate dietary intake, ineffective caregiving practices, parental roles, and poor food habits. In contrast, nutrition-sensitive elements might involve food insecurity and insufficient economic resources at the individual, household, and community levels.

According to a comprehensive report by UNICEF, WHO, and the World Bank Group in 2020, an alarming estimate of 144 million children under the age of five globally suffer from stunting. This severe form of malnutrition signifies a critical issue in child health. Additionally, about 47 million children within this age group are classified as wasted, with 14.3 million being severely wasted—a distressing statistic, particularly since over one-third of these vulnerable children reside in Africa (WHO report, 2020).

When we refer to underweight in children under five, it is specifically defined using a weight-for-age Z-score that is more than two standard deviations below the median of the reference population, marking a significant nutritional deficiency. Conversely, overweight is identified as a child whose weight-for-height Z-score exceeds two standard deviations above the reference median, presenting an emerging and concerning dimension of childhood malnutrition. Recent statistics reveal that there are now approximately 38.3 million children

classified as overweight globally, a troubling increase of 8 million since the year 2000 (Govender et al., 2021).

India, despite being the second-largest producer of food in the world, paradoxically faces a significant crisis of child malnutrition. Remarkably, nearly 50% of children under five succumb to malnutrition-related causes every year. This calls for urgent action and insightful studies to assess the prevalence of undernutrition, particularly among children aged 1 to 5 years.

In a focused study conducted in rural areas of the Agra district, researchers employed standard anthropometric measurements of height and weight to assess children's nutritional status. A purposive sampling method enrolled 59 children under 2.5 years old (31 boys and 28 girls). The findings revealed a startling prevalence of underweight (Weight-for-Age Z-score or WAZ) among these young children, with 80.64% of boys and an even more alarming 89.28% of girls classified as underweight. Furthermore, the stunting rates (Height-for-Age Z-score or HAZ) were also high, with 83.87% of boys and an extraordinary 92.85% of girls affected.

Interestingly, the dietary intake analysis indicated that girls had lower nutrient consumption compared to boys when benchmarked against the Recommended Dietary Allowance (RDA) set by the Indian Council of Medical Research (ICMR). These findings underscore the harsh reality of malnutrition in rural children, which is consistent with national prevalence trends (Singh et al., n.d.). Addressing this critical issue is essential for the health, growth, and future of these children.

Malnutrition stands as one of the most pressing public health challenges globally, particularly affecting children during their formative years. It serves as a stark indicator of the socio-economic difficulties faced by communities, with a severe impact observed particularly in developing nations. This study aims to shed light on the prevalence of malnutrition among children aged 1 to 3 years in the rural Saharanpur district of Uttar Pradesh, while also exploring its connections to various demographic factors.

A cross-sectional study involving 800 children used a four-stage sampling method to assess malnutrition through anthropometric measurements. Data on socio-demographics were collected via a structured questionnaire, and nutritional status was analyzed using WHO

Anthro Plus software. The study reported a 39.7% overall prevalence of malnutrition, with 21% stunted, 14% underweight, and 4.7% wasted. Notably, no significant association was found between gender and any of the nutritional indicators, suggesting that malnutrition affects children regardless of gender.

In the rural landscapes of Saharanpur, the incidence of malnutrition notably affected children aged 1 to 3 years. The factors influencing the underweight status included the child's age, while stunting was significantly associated with the educational status and occupation of the mother, alongside the father's occupation, the child's age, and their caste. Additionally, the socio-demographic elements impacting wasting were closely linked to the educational levels and occupations of both parents, as well as the child's caste (Pradesh et al., 2022).

Malnutrition emerges as one of the most critical public health challenges worldwide, striking particularly hard at children during their crucial early developmental years. It serves not only as a stark indicator of the socio-economic hardships confronted by communities but also reflects the broader systemic issues that develop as a result. The consequences are especially pronounced in developing nations, where the struggle for adequate nutrition can significantly hinder a child's growth and potential. This study sets out to illuminate the alarming prevalence of malnutrition among children aged 1 to 3 years in the rural Saharanpur district of Uttar Pradesh. Additionally, it seeks to unravel the intricate connections between malnutrition and various demographic factors, providing a comprehensive understanding of this urgent issue.

The results revealed a startling prevalence rate of malnutrition at 39.7%, comprised of 14% classified as underweight, 21% as stunted, and 4.7% as wasted. Interestingly, the study found no significant correlation between gender and the anthropometric indicators of underweight, stunting, or wasting among the examined children.

Malnutrition among children aged 1–3 years in rural Saharanpur is a significant concern, influenced by multiple socio-demographic factors. Underweight status is primarily linked to age, while stunting is strongly associated with maternal education and occupation, along with father's occupation, child's age, and caste. Similarly, wasting is influenced by the educational and employment status of both parents, highlighting the deep connection between socioeconomic factors and child nutrition (Pradesh et al., 2022).

Undernutrition among children under five in India represents a significant public health challenge that persists despite the country's economic growth. Alarmingly, the child mortality rate attributed to undernutrition remains high across both urban and rural landscapes. A comprehensive community-based cross-sectional study was carried out in 16 randomly selected clusters within two distinct districts of Maharashtra state, India.

Data collection involved a thorough household survey, where dedicated researchers engaged with mothers of under-five children through detailed interviews. The findings revealed a troubling prevalence of malnutrition: stunting was observed in 45.9% of children, while 17.1% exhibited signs of wasting, and 35.4% were classified as underweight. Notably, these conditions were more pronounced in urban slum areas compared to rural regions, highlighting stark disparities in child health.

Further insights from the study indicated that exclusive breastfeeding (EBF) was practiced by 46% of mothers surveyed. However, this practice was significantly more prevalent in rural settings, where EBF rates soared to 78%, contrasting sharply with a mere 15% among children in urban slums.

Several factors were identified as influential on the nutritional status of children, including the child's sex, birth order, the practice of exclusive breastfeeding, family economic status, family structure, incidences of acute diarrhea, and the educational level of mothers (Murarkar et al., 2020). This multifaceted approach underscores the complexity of undernutrition and the need for targeted interventions that address the diverse factors affecting child health across different communities.

DEPARTMENTAL STUDIES

A study in urban Vadodara, Gujarat revealed poor dietary diversity among young children. While cereal consumption was high (96%), intake of meat (8%), nuts (14%), and eggs (9%) was low. Over half (54.5%) of children aged 6–59 months had inadequate dietary diversity, with male children particularly affected (Kantawala et al., 2023). Similarly, another study found 59.6% of children under five in urban Vadodara had low dietary diversity, highlighting

the widespread nature of this nutritional concern (Sengar & Karud, 2022; Dhruv S and Mwango H, 2023).

A study in rural Vadodara highlighted poor Infant and Young Child Feeding (IYCF) practices, with low rates of timely breastfeeding initiation (54.2%), colostrum feeding (58.3%), and exclusive breastfeeding (31.9%). As a result, malnutrition was severe, with 33.3% wasted, 75% stunted, and 62.5% underweight. The study also found a strong link between stunting, wasting, and developmental delays, stressing the need for behavior change interventions to improve IYCF practices and child nutrition (Nambiar & Khanna, 2017).

A study using NFHS-4 data found that 47% of children in Gujarat were underweight, compared to 43% in India**.** However, Infant and Young Child Nutrition (IYCN) practices such as early breastfeeding initiation, exclusive breastfeeding, and timely complementary feeding were better in Gujarat than the national average. While child malnutrition has declined over time, the number of undernourished children remains high. NFHS data shows progress in IYCN practices, but the pace of improvement is still a concern (Gandhi & Shah, 2020).

METHODOLOGY

In developing nations, complementary feeding practices are essential for reducing under-five mortality rates. Increased neonatal morbidity and mortality may result from inadequate supplemental feeding. However, due to limitations including time, money, and family support, it can be difficult for caregivers to ensure that children are eating enough throughout this crucial feeding phase. Studies, highlight that active paternal involvement significantly enhances feeding practices for infants and young children.

OBJECTIVES OF THE STUDY

BROAD OBJECTIVE

To study the feeding styles followed by parents of children aged 6-24 months in Rural Dabhoi.

SPECIFIC OBJECTIVE

I. To assess the feeding practices followed by the parents among children of 6-24 months.

II. To assess diet quality of complementary foods in children aged 6-24 months.

III. To assess the nutritional status of children 6-24 months.

STUDY DESIGN

A community based cross sectional study was conducted to assess parental feeding styles and dietary quality of complementary foods among 6-24 months children in rural Dabhoi. Using purposive snowball sampling method was applied to select study participants 266 mother and father. A total number of 266 households were enrolled in the study. The duration of the study was from November 2024 to February 2025 (FIGURE 3. 1).

STUDY APPROVAL

Ethical approval for the study was obtained from the Institutional Ethics Committee for Human Research (IECHR) (Ethical Clearance Number IECHR/FCSc/M.Sc./10/2024/31(Annexure 3.1). The subjects were informed in detail about the study and written consent was also acquired from the subjects (Annexure 3.2).

FIGURE 3. 1: STUDY PLAN

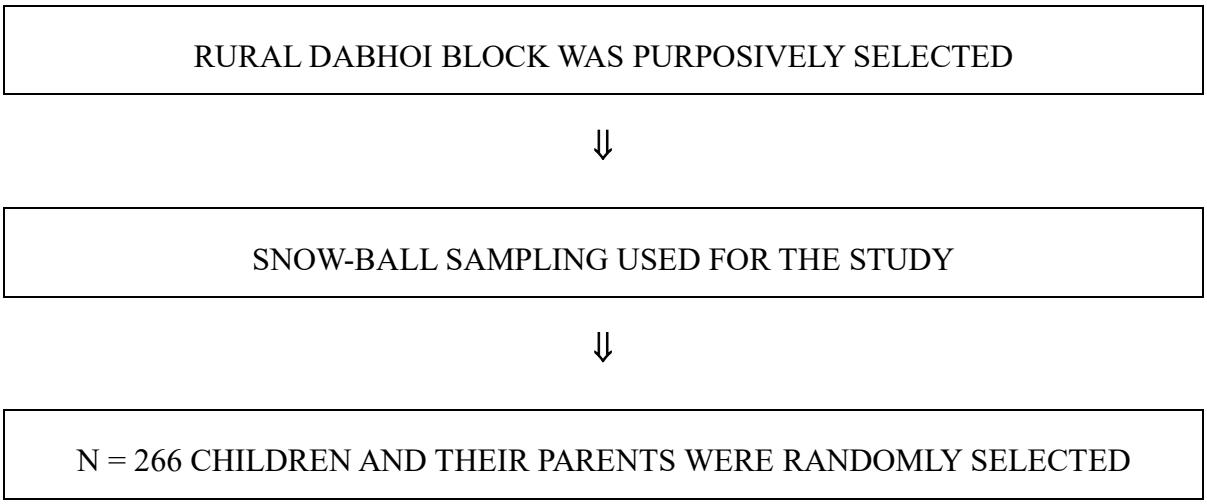


FIGURE 3. 2: MAP OF GUJARAT SHOWING VADODARA

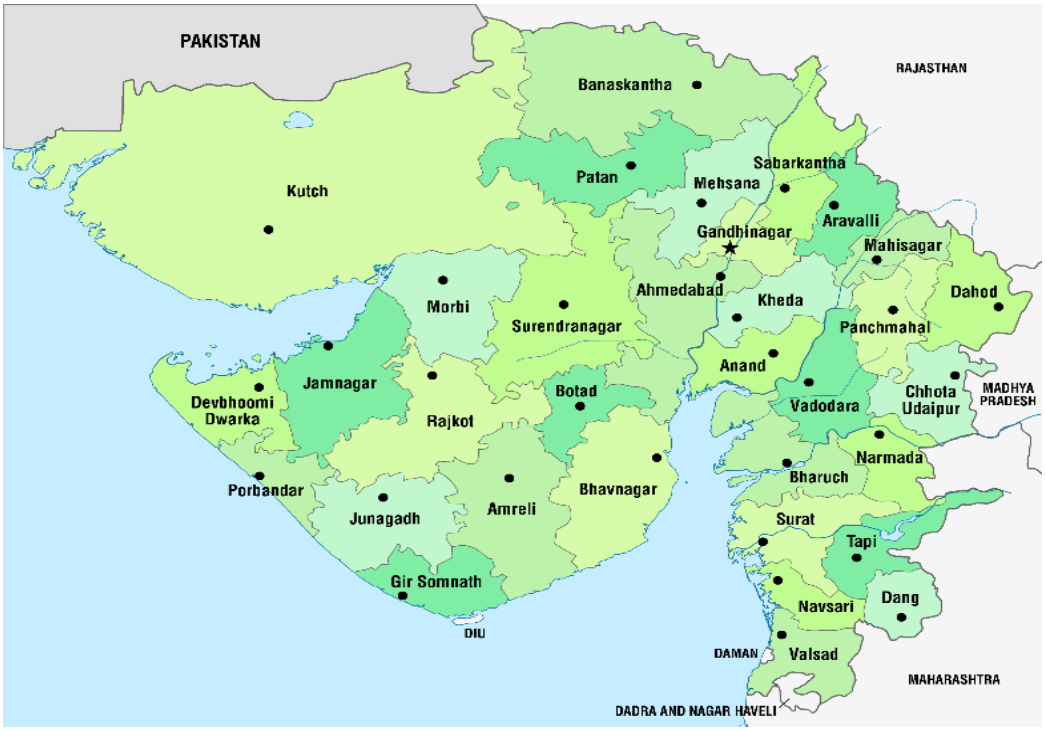


FIGURE 3. 3: MAP OF SHOWING DABHOI

As mentioned before, the data was collected by using snow-ball sampling in Rural Dabhoi (FIGURE 3. 1). Data was collected on Socio-economic status, Child information, IYCF practices, feeding techniques, Support domains in IYCF, Knowledge, Attitude and Practice (KAP) of both the Parents on Complementary Feeding Practices, Diet diversity, Food frequency patterns of children using detailed formulated questionnaire and Feeding practice and structure questionnaire (FPSQ).

SAMPLE SIZE

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

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

Where, P= Prevalence rate of MDD

= 17.8% = 0.178

Q = 1- P, = 0.822

= level of Significance (type 1 error) $Z^2 /2 = 4\Sigma$ = Allowable error 5% Then $n= 4 \times 0.178 \times 0.822 / 0.0025 = 225$

10% non response rate = $225 \times 10/100 = 22.5$

= 225+22.5 = 247.5

= 250

STUDY CRITERIA

Inclusion criteria:

- Children who have completed 6 months of age and are <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.

EXPECTED OUTCOMES

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.

STUDY PLAN

In this study, data was collected through interviews with mothers and fathers of children to assess various factors related to child nutrition and parental roles. The questionnaire addressed socio-economic status, Infant young child feeding (IYCF) practices, feeding techniques, and support systems in infant and young child feeding (IYCF). It also explored parent's knowledge of complementary feeding, dietary diversity, and children's food frequency patterns. The tools and techniques used to collect the data structured detailed in (FIGURE 3.1).

The questionnaire comprised of the following key parameters:

BACKGROUND INFORMATION

The socio-economic profile of families was assessed using a structured questionnaire, covering aspects such as religion, caste, education and occupation of fathers, family size, income, additional income sources, and toilet facilities. The Revised Kuppuswamy Classification (2024) was applied for socio-economic categorization (TABLE 3.4), based on the framework by Mandal and Hossain (2024).

ANTHROPOMETRIC DATA

Anthropometric measurements, including weight and height, were conducted to evaluate the nutritional status and growth patterns of children. These measurements provide crucial insights into nourishment and development.

FIGURE 3.1: TOOLS & TECHNIQUES FOR DATA COLLECTION

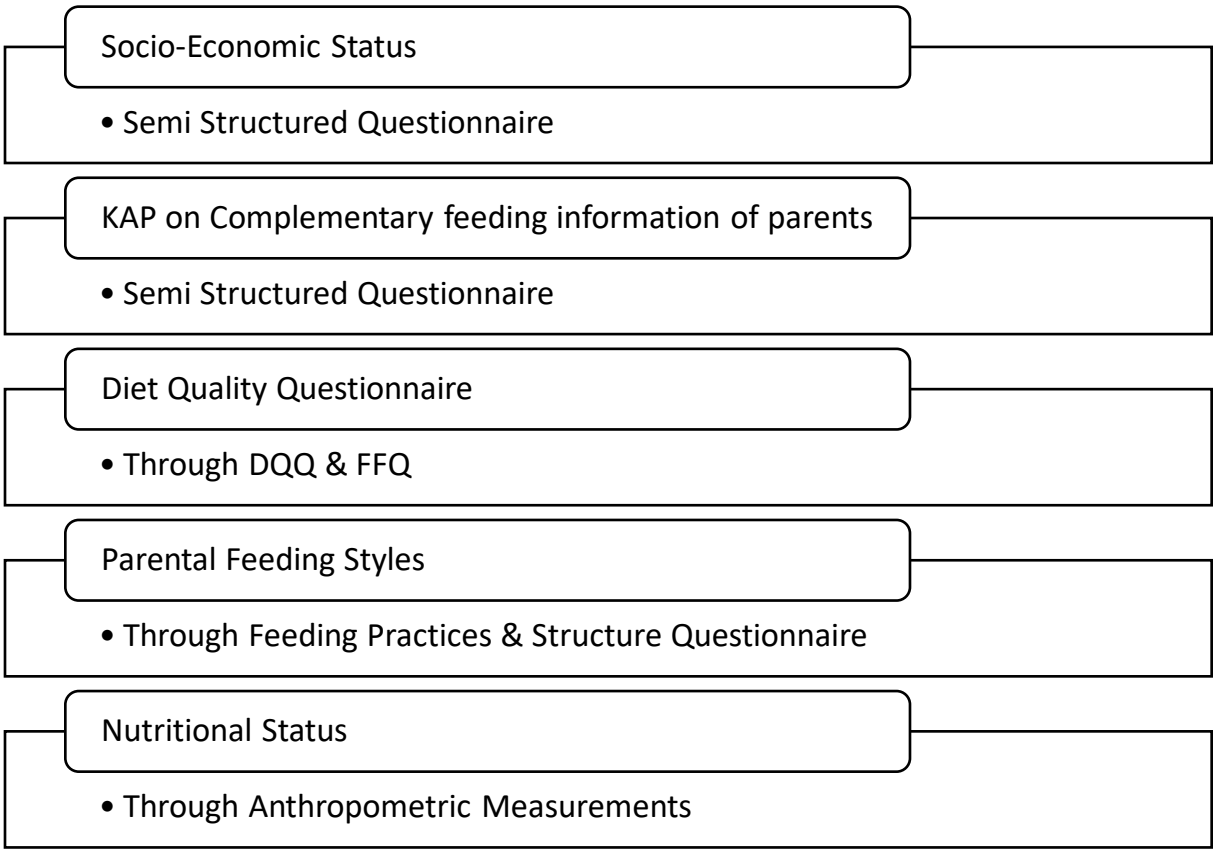


TABLE 3. 1: THE SCORING SYSTEM FOR EDUCATION

EDUCATION	SCORE
Profession or Honors	7
Graduate	6
Intermediate or diploma	5
High schools certificate	4
Middle schools certificate	3
Primary schools certificate	2
Illiterate	1

(Source: Mandal I, Hossain SR. Update of modified Kuppuswamy scale for the year 2024. Int J Community Med Public Health 2024;11:2945-6.)

TABLE 3.2: 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
Skilled Agricultural and Fishery Workers	5
Craft and Related Trade Workers	4
Plant and Machine Operators and Assemblers	3
Elementary Occupation	2
Unemployed	1

(Source: Mandal I, Hossain SR. Update of modified Kuppuswamy scale for the year 2024. Int J Community Med Public Health 2024;11:2945-6.)

TABLE 3.3: TOTAL MONTHLY INCOME OF THE FAMILY AND SCORE

MONTHLY FAMILY INCOME	SCORE
≥ 2,13,814	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 I, Hossain SR. Update of modified Kuppuswamy scale for the year 2024. Int J Community Med Public Health 2024;11:2945-6.)

TABLE 3.4: KUPPUSWAMI SOCIO-ECONOMIC CLASS

Sr. No.	Score	Socio-Economic Class
1	26-29	Upper class (I)
2	16-25	Upper middle class (II)
3	11-15	Lower middle class (III)
4	5-10	Upper lower class (IV)
5	<5	Lower (V)

(Source: Mandal I, Hossain SR. Update of modified Kuppuswamy scale for the year 2024. Int J Community Med Public Health 2024;11:2945-6.)

WEIGHT MEASUREMENT

Children's weight was recorded using an electronic infant weighing scale with an accuracy of 100g. The process involved laying children on their backs in the center of the scale pan, ensuring a flat and stable surface, 'ZERO' on the scale before weighing, and minimizing clothing and accessories. Measurements were recorded in kilograms to the nearest 100g after the digital display stabilized. This systematic approach ensured precise and reliable weight assessment.

HEIGHT MEASUREMENT

For children under two years, height was measured using an infantometer. The infant was placed on their back with their head resting against the fixed headboard, ensuring the head was aligned parallel to the board. The mother was instructed to hold the infant's head in position, and the measurement was recorded.

For older children, a stadiometer was used. Participants were asked to remove shoes, hats, and accessories, stand straight with their back against the stadiometer, feet together, and arms at their sides. The headpiece was gently lowered onto the top of the head, and the height was measured to the nearest millimeter.

ANTHROPOMETRIC INDICATORS

Anthropometric data were used to evaluate the nutritional status of children based on three key indicators: weight-for-age, height-for-age, and weight-for-height. These were compared with the WHO Growth Standards (2006) using WHO Anthro software. Z-score cut-off values were applied to classify children into different nutritional status categories.

Infant and Young Child Feeding (IYCF) Practices

Data on IYCF practices were collected through a questionnaire covering various aspects of child nutrition and care. Topics included early initiation of breastfeeding, colostrum given to

the child, exclusive breastfeeding, complementary feeding (quality, quantity, and frequency), sanitation, hygiene, childcare practices, and feeding techniques.

TABLE 3.5: 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)

DIET QUALITY OF CHILREN (DQQ)

Children's dietary intake was evaluated using two versions of the Diet Quality Questionnaire (DQQ): one for children above 35 months and another for children under 35 months. The DQQ

assesses nutrient sufficiency and dietary patterns, comprising 29 food groups to derive various dietary indicators. (Annexure 3)

FOOD FREQUENCY QUESTIONNAIRE (FFQ)

A Food Frequency Questionnaire (FFQ) based on the NOVA classification system was developed to assess the frequency of ultra-processed food consumption among children aged 0-6 years. (Annexure 3)

The FFQ covered various foods providing insight into dietary habits:

- Minimally processed foods
- Processed foods
- Ultra-processed foods
- Homemade or ready-to-eat ultra-processed foods

The Food Frequency Questionnaire (FFQ) provided valuable insights into the dietary patterns of this vulnerable population and served as a reliable tool for examining associations between processed food consumption and other influencing factors.

SUPPORT FOR PARENT'S IN CHILD-CARE AND FEEDING

A questionnaire was used to gather information on the support parents receive in feeding and caring for their children. It focused on responsibilities such as spending money, purchasing food, preparing meals, reminding the parents to feed the child, teaching the child to eat independently, washing the child's hands, and assisting with other chores to allow the mother to prepare meals.

PARENT'S KNOWLEDGE AND ROLE IN COMPLEMENTARY FEEDING

To assess parent's knowledge and involvement in complementary feeding, questions were asked about exclusive breastfeeding, complementary feeding practices, food consistency, and their participation. Topics included whether parent's feed the child, how often and in what manner, if they wash the child's hands, change nappies, take the child to hospital visits, and their overall level of involvement. Questions also explored communication, challenges, barriers.

PARENTS FEEDING STYALS

The Feeding Practices and Structure Questionnaire (FPSQ) was used as a tool to evaluate early feeding practices. The FPSQ uses a 5-point Likert scale (e.g., never to always). It is designed to measure non-responsive feeding behaviors and the structure of the meal-time environment. This tool enabled the assessment of different parental feeding styles, including authoritative, authoritarian, permissive, and responsive styles, providing insights into how these behaviors influence children's eating habits and nutritional outcomes.(Jansen et al., 2016)

CALCULATING SCORE OF DEMANDINGNESS AND RESPONSIVENESS

The way parents encourage their child to eat is called as **demandingness** where as parents respond to their child's eating cues and needs is termed as **responsiveness**.

Demandingness was calculated with the average score across all the items and Responsiveness is a ratio of average of child-centered items scores over the total scores.

Calculated the median for the mother and father for both demandingness and responsiveness. Categorize the sample participants (Mother and Father) into high and low categories on demandingness and responsiveness.

Based on the low and high categories on demandingness and responsiveness the median values were calculated as shown in (TABLE 3.6):

TABLE 3.6: MEDIAN VALUE FOR PARENT'S FOR BOTH DEMANDINGNESS AND RESPONSIVENESS

	Mother	Father
Median Value		
Demandingness	2.27	1.90
Responsiveness	1.21	1.70

The items that show focus on the child's needs and preferences during feeding it's called Child-centered items and the items that show focus on the parent's control and expectations during feeding it's called Parent-centered items.

TABLE 3.7: BASED ON FEEDING STYLES, THE PARTICIPANTS WERE CATEGORIZED INTO FEEDING STYLES BASED ON THEIR SCORES ON DEMANDINGNESS AND RESPONSIVENESS

	Low Demandingness	High Demandingness
Low Responsiveness	Uninvolved	Authoritarian
High Responsiveness	Indulgent	Authoritative

STATISTICAL ANALYSIS

The data was collected cleaned and verified after which it was subjected to appropriate statistical analysis. Frequency distribution, Percentages, Mean, Standard deviation, etc were calculated for all parameters using SPSS version 22. Anthropometric data was analyzed by WHO Anthro software (V.3.2.2). Results have been presented in tabular and/or graphical from.

RESULT AND DISCUSSION

Childhood undernutrition is a significant global challenge affecting growth and development. Proper feeding and caregiving practices are key factors in ensuring good nutrition and health in early childhood. Parents and caregivers play a crucial role in providing appropriate nutrition and care, as well as shaping healthy eating habits in children. Research indicates that parental feeding patterns and caregiving approaches greatly impact a child's nutrition and overall well-being. Parental feeding style refers to the specific attitudes and behaviors caregivers display during feeding, which influence a child's diet and eating habits.

Socio-demographic information of the subjects is shown in Table 4.1. The data on religion, caste, type of family, number of family members, and whether the household has a toilet facility is segregated by gender. The findings show that the majority of the people in the survey were Hindu (72.9%), followed by Muslims (22.2%) and Jains (4.9%). Almost half of the subjects belonged to the General category (53.4%), followed by Scheduled Tribes (24.8%), Scheduled Castes (1.9%) and Other Backward Classes (19.9%). Most of the families were joint families (72.6%), followed by nuclear families (22.2%) and extended families (5.3%). The majority of the families had 5-8 (61.7%) family members, followed by less than 4 family members (22.6%) and more than 9 family members (15.8%). 94.0% of the households had a toilet facility while only 6% of the households had no toilet facility.

Among the mothers, 6.8% were below the age of 20, with 6.3% in female children and 7.2% in male children. The majority of mothers (66.2%) belonged to the 20-30 age group. Mothers aged 30-40 comprised 25.6% of the total, with 24.4% and 26.6% in the respective females and males. Only a small proportion (1.5%) of mothers were aged between 40-50 years. Among fathers, only 0.8% were below the age of 20, with equal distribution (0.8% and 0.7%) in female and male. The 20-30 age group constituted 47.0% of the fathers. Fathers aged 30-40 years formed the largest proportion at 47.7%. A small percentage (4.5%) of fathers were in the 40-50 age range.

TABLE 4.1: SOCIO-DEMOGRAPHIC INFORMATION BY GENDER

Demographic Profile by SES							Chi-square (P value)
Category	Female (N=127)		Male (N=139)		Total (N=266)		
	N	%	N	%	N	%	
Religion							
Hindu	94	74.0%	100	71.9%	194	72.9%	0.553 (0.759)
Muslim	26	20.5%	33	23.7%	59	22.2%	
Jain	7	5.5%	6	4.3%	13	4.9%	
Caste							
ST	29	22.8%	37	26.6%	66	24.8%	2.960 (0.398)
SC	1	0.8%	4	2.9%	5	1.9%	
OBC	29	22.8%	24	17.3%	53	19.9%	
General	68	53.5%	74	53.2%	142	53.4%	
Type of family							
Nuclear	31	24.4%	28	20.1%	59	22.2%	0.779 (0.678)
Joint	89	70.1%	104	74.8%	193	72.6%	
Extended	7	5.5%	7	5.0%	14	5.3%	
Total number of family members							
<4	31	24.4%	29	20.9%	60	22.6%	1.271 (0.530)
5-8	79	62.2%	85	61.2%	164	61.7%	
>9	17	13.4%	25	18.0%	42	15.8%	
Toilet facility available in the household							
Yes	117	92.1%	133	95.7%	250	94.0%	1.486 (0.223)
No	10	7.9%	6	4.3%	16	6.0%	
Age Of Mother							
<20	8	6.3%	10	7.2%	18	6.8%	1.418 (0.701)
20-30	85	66.9%	91	65.5%	176	66.2%	
30-40	31	24.4%	37	26.6%	68	25.6%	
40-50	3	2.4%	1	0.7%	4	1.5%	
Age Of Father							
<20	1	0.8%	1	0.7%	2	0.8%	0.799 (0.850)
20-30	63	49.6%	62	44.6%	125	47.0%	
30-40	57	44.9%	70	50.4%	127	47.7%	
40-50	6	4.7%	6	4.3%	12	4.5%	

Table 4.2 majority of mothers had a middle school certificate (40.2%), with similar distributions among mothers of female (40.2%) and male (40.3%) children. High school certificates were held by 15.4% of mothers, with nearly equal representation among both groups (15.7% for female and 15.1% for male). A total of 17.7% of mothers were graduates,

with a higher percentage among mothers of male children (21.6%) compared to female children (13.4%). Additionally, 14.7% of mothers had professional or honors-level education, with slightly more among female children's mothers (16.5%) than male children (12.9%). A smaller proportion of mothers had only a primary school certificate (7.1%), while 3.8% were illiterate. The lowest percentage was observed in the intermediate or diploma category, with only 1.1% of mothers falling into this group. The Chi-square test result ($p = 0.518$) suggests that there is no statistically significant association between the educational qualification of mothers and the gender of their children.

Table 4.2 majority of mothers were unemployed (91.7%), with similar percentages among mothers of female (92.1%) and male (91.4%) children. Among the employed mothers, professionals accounted for 3.4%, with a higher proportion among mothers of male children (4.3%) than female (2.4%). Similarly, skilled workers and shop/market sales workers made up 4.1% of the total, with 5.5% being mothers of female children and 2.9% of male children. Only a very small percentage of mothers were engaged in craft and related trade work (0.4%) or as plant/machine operators (0.4%). Notably, no mothers were employed as legislators, senior officials, or managers. The Chi-square test result ($p = 0.449$) indicates no statistically significant association between the occupation of mothers and the gender of their children.

TABLE 4.2: EDUCATION AND OCCUPATION OF MOTHER AND FATHER BY GENDER CLASSIFICATION

Category	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
Educational Qualification of Mother							
Profession or Honors	21	16.5%	18	12.9%	39	14.7%	5.203 (0.518)
Graduate	17	13.4%	30	21.6%	47	17.7%	
Intermediate or Diploma	1	0.8%	2	1.4%	3	1.1%	
High School Certificate	20	15.7%	21	15.1%	41	15.4%	
Middle School Certificate	51	40.2%	56	40.3%	107	40.2%	

Primary School Certificate	12	9.4%	7	5.0%	19	7.1%	
Illiterate	5	3.9%	5	3.6%	10	3.8%	
Occupation of Mother							
Legislators, Senior Officials and Managers	0	0%	0	0%	0	0%	3.694 (0.449)
Professionals	3	2.4%	6	4.3%	9	3.4%	
Skilled Workers and Shop and Market Sales Workers	7	5.5%	4	2.9%	11	4.1%	
Craft and Related Trade Workers	0	0%	1	0.7%	1	0.4%	
Plant and Machine Operators and Assemblers	0	0%	1	0.7%	1	0%	
Unemployed	117	92.1%	127	91.4%	244	91.7%	

Table 4.3 distribution of father's educational qualifications showed that the majority had a middle school certificate (36.1%), with 35.4% among fathers of female participants and 36.7% among fathers of male participants. This was followed by graduate-level education (22.6%), with 19.7% of fathers of female participants and 25.2% of fathers of male participants holding a graduate degree. A high school certificate was obtained by 12.8% of fathers, with 15.0% in the female group and 10.8% in the male group. A smaller proportion had an intermediate or diploma qualification (7.5%), with slightly more male participants' fathers (9.4%) in this category compared to female participants' fathers (5.5%). Among fathers with lower education, 7.5% had a primary school certificate, while 1.5% were illiterate. The proportion of fathers with the highest educational qualification (profession or honors) was 12.0%, with similar representation in both groups (12.6% and 11.5%). The chi-square test showed no significant association between the father's educational qualifications and the gender of their children.

Table 4.3 depicts the occupation of the parents, the majority of fathers were skilled workers and shop or market sales workers (49.6% male and 53.5% female). Professionals constituted 15.8% of fathers, with a slightly higher proportion in the male group (16.5%) compared to the female group (15.0%). Technicians and associate professionals accounted for 10.5% of the

total, with an almost equal distribution between males and females. Only a small percentage (3.0%) of fathers were legislators, senior officials, or managers. Craft and related trade workers made up 9.0%, while skilled agricultural and fishery workers represented 3.0%. A minor proportion (1.5%) were engaged in elementary occupations, and 3.4% worked as plant and machine operators and assemblers. Unemployment among fathers was rare, with only 0.4% reported as unemployed. The chi-square test indicated no statistically significant difference in father's occupations based on the gender of their children.

TABLE 4.3: EDUCATION AND OCCUPATION OF FATHER BY GENDER CLASSIFICATION

Category	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
Educational Qualification of Father							
Profession or Honors	16	12.6%	16	11.5%	32	12.0%	5.582 (0.472)
Graduate	25	19.7%	35	25.2%	60	22.6%	
Intermediate or Diploma	7	5.5%	13	9.4%	20	7.5%	
High School Certificate	19	15.0%	15	10.8%	34	12.8%	
Middle School Certificate	45	35.4%	51	36.7%	96	36.1%	
Primary School Certificate	12	9.4%	8	5.8%	20	7.5%	
Illiterate	3	2.4%	1	0.7%	4	1.5%	
Occupation of Father							
Legislators, Senior Officials and Managers	6	4.7%	2	1.4%	8	3.0%	7.774 (0.557)
Professionals	19	15.0%	23	16.5%	42	15.8%	
Technicians and Associate Professionals	14	11.0%	14	10.1%	28	10.5%	
Clerks	1	0.8%	4	2.9%	5	1.9%	
Skilled Workers and	68	53.5%	69	49.6%	11	4.1%	

Shop and Market Sales Workers							
Craft and Related Trade Workers	9	7.1%	15	10.8%	24	9.0%	
Skilled Agricultural and Fishery Workers	5	3.9%	3	2.2%	8	3.0%	
Elementary Occupation	1	0.8%	3	2.2%	4	1.5%	
Plant and Machine Operators and Assemblers	4	3.1%	5	3.6%	9	3.4%	
Unemployed	0	0.0%	1	0.7%	1	0.4%	

As shown in Table 4.4, the majority of households fall within the income range of Rs 10,703- Rs 31,977 for 44.0% of the total households. A higher proportion of male children's households (49.6%) fall within this income range compared to female children's households (37.8%). The second-largest group includes those earning less than Rs 10,702, comprising 28.2% of the total, with similar distributions among female children (29.1%) and male children (27.3%) households. A smaller proportion of households belong to the higher income categories. Only 4.5% of households earn between Rs 80,110 - Rs 1,06,849, and an even smaller percentage (1.1%) fall within the Rs 1,06,850 - Rs 2,13,813 income group. The highest income group, earning Rs 2,13,814 and above, consists of only 0.8% of households. The chi-square test result indicates no significant association between gender and household income distribution.

A majority (76.7%) of households reported no additional income sources. Among those that did have additional sources, agriculture was the most common, contributing to 21.8% of households, with a slightly higher proportion in male children's households (23.0%) compared to female children's households (20.5%). Other sources of additional income, such as house/shop rent (1.1%) and poultry farming (0.4%), were reported at minimal levels. No significant gender-based variation in additional income sources.

Based on the Kuppuswamy socio-economic scale, most households fall under the lower middle class (III) (41.0%), followed by the upper lower class (IV) (30.8%). The upper middle class (II) accounts for 27.4%, while only 0.8% belong to the upper class (I). The mean Kuppuswamy score across all groups is 13.1 ± 4.1, with no variation between male and female children's households. The chi-square test indicates no significant difference in socioeconomic classification based on gender.

TABLE 4.4: INCOME CLASSIFICATION OF HOUSEHOLD BY GENDER CLASSIFICATION

Category	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
Monthly Income range as per Kuppuswamy 2024							
<10,702	37	29.1%	38	27.3%	75	28.2%	9.650 (0.140)
10,703-31,977	48	37.8%	69	49.6%	117	44.0%	
31,978-53,360	26	20.5%	20	14.4%	46	17.3%	
53,361-80,109	8	6.3%	3	2.2%	11	4.1%	
80,110-1,06,849	7	5.5%	5	3.6%	12	4.5%	
1,06,850-2,13,813	0	0.0%	3	2.2%	3	1.1%	
2,13,814 and above	1	0.8%	1	0.7%	2	0.8%	
Any Other Income Source of Household							
Agriculture	26	20.5%	32	23.0%	58	21.8%	1.494 (0.684)
Poultry	0	0%	1	0.7%	1	0.4%	
House/Shop rent	1	0.8%	2	1.4%	3	1.1%	
None	100	78.7%	104	74.8%	204	76.7%	
Kuppuswamy Category							
Upper (I)	1	0.8%	1	0.7%	2	0.8%	0.627 (0.890)
Upper Middle (II)	32	25.2%	41	29.5%	73	27.4%	
Lower Middle (III)	54	42.5%	55	39.6%	109	41.0%	
Upper Lower (IV)	40	31.5%	42	30.2%	82	30.8%	
Kuppuswamy Score	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	
	13.1	4.1	13.1	4.1	13.1	4.1	

The gender distribution of the study participants in two age groups, 6–12 months and 12–24 months, is shown in Table 4.5. Children between the ages of 6 and 12 months, 40 (31.5%) were female, and 36 (25.9%). There were 103 (74.1%) males and 87 (68.5%) females in the 12–24 month group. The age range of 12 to 24 months had a higher proportion of males compared to females. Additionally, more than half of the children (55.3%) were firstborn, with a slightly higher proportion among males (56.1%) compared to females (54.3%). Around 30.8% of children were of second birth order, with an equal proportion among both genders (32.3% females and 29.5% males). A smaller proportion (13.9%) were of third birth order or higher, with 14.4% among males and 13.4% among females indicating no significant difference in birth order distribution between genders.

TABLE 4.5: GENDER OF THE CHILD

Particulars	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
Age Category							
6 - 12 months	40	31.5%	36	25.9%	76	28.6%	-
12-24 months	87	68.5%	103	74.1%	190	71.4%	
Birth order of the child							
1	69	54.3%	78	56.1%	147	55.3%	0.253 (0.881)
2	41	32.3%	41	29.5%	82	30.8%	
≥3	17	13.4%	20	14.4%	37	13.9%	

Table 4.6 presents data on sanitation and hygiene practices. The findings reveal that hand washing before cooking is relatively low (36.5%), while nearly all respondents wash their hands after cooking (98.1%). Similarly, hand washing before feeding a child is practiced by only 34.2% of participants, whereas after feeding, it increases to 98.5%. Hygiene practices following child faeces cleaning are high, with 99.6% of respondents adhering to it. Regarding hand washing, 60.5% wash under running water, but only 39.5% use soap or ashes. These findings highlight the need for improved hygiene practices, particularly regarding before cooking and before feeding hand washing.

TABLE 4. 6: HANDWASHING PRACTICES

Category	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
Sanitation and hygiene							
Washing Before cooking							
Yes	45	35.4%	52	37.4%	97	36.5%	0.112 (0.738)
No	82	64.6%	87	62.6%	169	63.5%	
After cooking							
Yes	126	99.2%	135	97.1%	261	98.1%	1.572 (0.210)
No	1	0.8%	4	2.9%	5	1.9%	
Before feeding the child							
Yes	42	33.1%	49	35.3%	91	34.2%	0.140 (0.708)
No	85	66.9%	90	64.7%	175	65.8%	
After feeding the child							
Yes	125	98.4%	137	98.6%	262	98.5%	0.008 (0.927)
No	2	1.6%	2	1.4%	4	1.5%	
After cleaning the child's feces							
Yes	127	100.0%	138	99.3%	265	99.6%	0.917 (0.338)
No	0	0.0%	1	0.7%	1	0.4%	
Could you please describe step by step how you wash your hands*							
Under running water	75	59.1%	86	61.9%	161	60.5%	0.220 (0.639)
Washes hands with soap or ashes	52	40.9%	53	38.1%	105	39.5%	

The data highlights water storage and treatment practices among respondents in Table 4.7. Piped water is the main household water source (100%), and 84.6% use water to clean containers, but only 1.5% use both water and soap. All participants store water in clean and covered containers, with earthen pots (83.5%) and metal pots (75.2%) being the most common storage vessels, while only 22.9% use RO tanks. For water retrieval, glasses (97%) and taps (88%) are the primary methods. Water treatment practices indicate that 57.9% do not treat their drinking water, while 42.1% apply some form of purification, primarily straining through a cloth (57.9%) or boiling and adding bleach/chlorine (29.3%). If water from an unsafe source is used, all respondents agreed on straining through a cloth, while 67.3% recommended boiling or adding bleach, and 28.2% suggested using a water filter. These findings emphasize the

reliance on traditional storage methods and the need for improved water purification awareness to ensure safer drinking water practices.

TABLE 4. 7: WASH PRACTICES FOLLOWED BY CAREGIVERS

Category	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
What is the main source of water used by your household for drinking, cooking and hand washing*							
Piped water into the dwelling	127	100.0%	139	100.0%	266	100.0%	-
Piped into yard or plot	0	0.0%	3	2.2%	3	1.1%	
Bottled water	1	0.8%	0	0.0%	1	0.4%	
Treat the vessel used to collect water							
No treatment	18	14.2%	19	13.7%	37	13.9%	0.023 (0.988)
Use of water	107	84.3%	118	84.9%	225	84.6%	
Use of water and soap	2	1.6%	2	1.4%	4	1.5%	
Water stored							
Clean and covered container	127	100.0%	139	100.0%	266	100.0%	-
Container used to store drinking water*							
Earthen Pot	103	81.1%	119	85.6%	222	83.5%	-
Metal Pot	96	75.6%	104	74.8%	200	75.2%	
RO Tank	31	24.4%	30	21.6%	61	22.9%	
Plastic Container	29	22.8%	31	22.3%	60	22.6%	
Vessel used for taking out the water*							
Glass	125	98.4%	133	95.7%	258	97.0%	-
Tap	107	84.3%	127	91.4%	234	88.0%	
Doyo	4	3.1%	1	0.7%	5	1.9%	
Do you treat your water in any way to make it safe to drink							
No	70	55.1%	84	60.4%	154	57.9%	

Yes	57	44.9%	55	39.6%	112	42.1%	0.769 (0.381)
If yes, treatment done to make the water safe to drink*							
Boil it Add bleach/chlorine	31	24.4%	47	33.8%	78	29.3%	-
Strain it through a cloth	70	55.1%	84	60.4%	154	57.9%	
Use a water filter	0	0.0%	5	3.6%	5	1.9%	
Alum	2	1.6%	5	3.6%	7	2.6%	
Water treated to use for cooking or drinking							
Boil it Add bleach/chlorine	82	64.6%	97	69.8%	179	67.3%	-
Strain it through a cloth	127	100.0%	139	100.0%	266	100.0%	
Use a water filter	37	29.1%	38	27.3%	75	28.2%	
Let it stand and settle	2	1.6%	0	0.0%	2	0.8%	

Table 4.8 on breastfeeding practices followed by mothers in rural areas of Dabhoi, categorized by gender of children. The currently breastfeeding infants was higher among females (70.9%) than males (66.9%). Regarding bottle feeding, 36.2% of females and 38.1% of males were bottle-fed. The results show that 62.0% of females and 59.2% of males were breastfed for 12-24 months. The chi-square test results indicate no statistically significant differences between males and females.

TABLE 4. 8: BREASTFEEDING PRACTICES

	Female (N=127)		**Male (N=139)**		**Total (N=266)**		**Chi-square (P value)**
	N	**%**	**N**	**%**	**N**	**%**	
Currently Breastfeeding							
No	37	29.1%	46	33.1%	83	31.2%	0.485 (0.486)
Yes	90	70.9%	93	66.9%	183	68.8%	

Bottle Feeding							
No	81	63.8%	86	61.9%	167	62.8%	0.104 (0.748)
Yes	46	36.2%	53	38.1%	99	37.2%	
Continued Breastfeeding for 12-24 months	**Female (N=87)**		**Male (N=103)**		**Total (N=190)**		**Chi-square (P value)**
	N	**%**	**N**	**%**	**N**	**%**	
No	33	38.0%	42	40.8%	75	39.5%	0.159 (0.689)
Yes	54	62.0%	61	59.2%	115	60.5%	

Table 4.9 on early initiation of breastfeeding (EIBF) and exclusive breastfeeding (EBF) practices in Dabhoi. Regarding EIBF, 18.0% of infants were breastfed immediately after birth, while 41.7% received breastfeeding within the first hour. 22.6% were breastfed within 24 hours, and 17.7% received breastfeeding after two days. There was no statistical significance for EIBF indicating a difference in initiation times between males and females. Additionally, 49.6% of infants were given something other than breast milk within the first two days, with no significant gender-based difference. Concerning EBF for the first 6 months, 71.4% of infants were exclusively breastfed, while 28.6% were not, with a non-significant chi-square result.

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

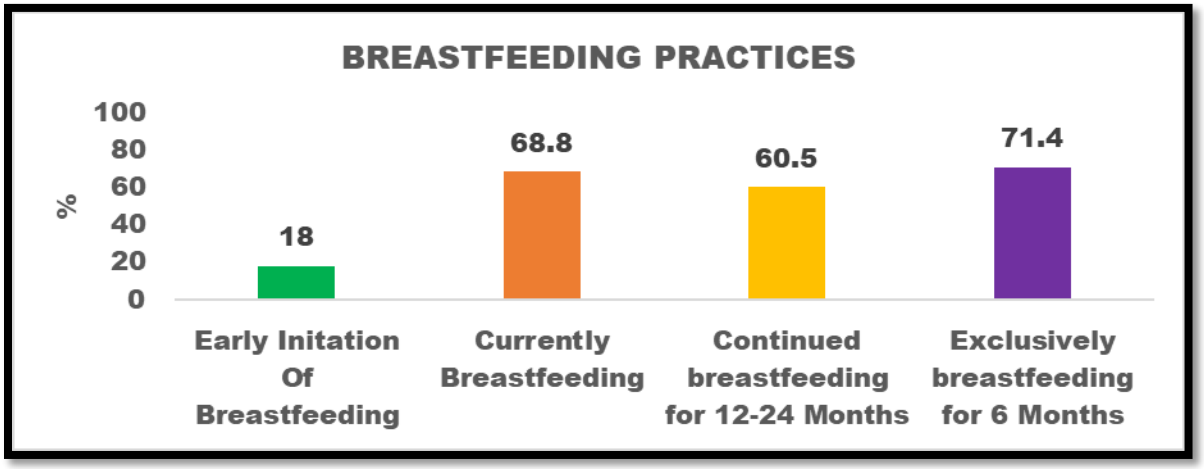


TABLE 4. 9: BREASTFEEDING PRACTICES IN 6-24 MONTHS CHILDREN

	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
EIBF							
Immediately	23	18.1%	25	18.0%	48	18.0%	7.574 (0.056)
Within one hour	63	49.6%	48	34.5%	111	41.7%	
Within 24 hours	22	17.3%	38	27.3%	60	22.6%	
After 2 days	19	15.0%	28	20.1%	47	17.7%	
In the first 2 days after delivery, was the child given anything							
No	69	54.3%	65	46.8%	134	50.4%	1.521 (0.218)
Yes	58	45.7%	74	53.2%	132	49.6%	
EBF for 6M							
1	91	71.7%	99	71.2%	190	71.4%	0.006 (0.938)
2	36	28.3%	40	28.8%	76	28.6%	

Table 4.10 shows that 82.0% of the complementary food was introduced, which is on time at the completion of 6 months, with 10.5% occurring before that time, and after seven months, which is 6.4%, and 1.1%, respectively, which has not begun yet.

TABLE 4. 10: INTRODUCTION OF COMPLEMENTARY FEED

Introduction of Complementary Feed	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
After 6 months	102	80.3%	116	83.5%	218	82.0%	0.895 (0.827)
Before 6 months	15	11.8%	13	9.4%	28	10.5%	
After 7 months	8	6.3%	9	6.5%	17	6.4%	

Not started yet	2	1.6%	1	0.7%	3	1.1%	

Table 4.11 assessed the frequency of complementary feeding among children. The majority (58.3%) received complementary feeding twice a day, with an equal proportion among males (58.3%) and females (58.3%). Feeding three times a day was reported in 30.1% of children, with a slightly higher proportion among males (31.7%) compared to females (28.3%). A small percentage of children received complementary feeding four times a day (4.5%) or five times a day (1.5%). Notably, 5.6% of children received complementary feeding only once a day, with a higher proportion among females (7.9%) than males (3.6%). These findings highlight that while most children are fed an adequate number of times per day, a small proportion may be at risk of inadequate complementary feeding, which could impact their nutritional status. The quantity of complementary foods consumed by children varied, with the majority (50.4%) receiving half a cup per feeding. This was slightly higher among males (51.1%) compared to females (49.6%). Around 34.6% of children consumed three-fourth of cups, with nearly equal distribution between males (33.1%) and females (36.2%). A smaller proportion (9.4%) consumed 1 cup of complementary food, with a slightly higher prevalence among males (10.8%) than females (7.9%). Only 5.6% of children received 1 tablespoon, with minimal variation between genders (Table 4.11). These findings suggest that while most children received an adequate quantity of complementary food, a small proportion might be receiving insufficient amounts, which could impact their nutritional intake and growth. The consistency of complementary food varies among children shown in Table 4.11. The majority (59.8%) consumed food with a medium consistency, with a similar proportion among males (60.4%) and females (59.1%). Around 32.7% of children received thick-consistency food, with a higher proportion among males (36.0%) compared to females (29.1%)**.** A smaller percentage (7.5%) were given thin-consistency food, with a significantly higher proportion among females (11.8%) than males (3.6%). Additionally, the majority (58.3%) of respondents add extra fats, oils, sugar, or jaggery to complementary foods. The time taken to feed a child varies, with 50.8% spending 30 minutes, while 41% take 15 minutes. Food storage habits indicate that 46.2% of respondents store cooked complementary foods for 2-3 hours, while 53% do not store them. Vegetable washing before cutting is widely practiced (97.7%).

TABLE 4. 11: COMPLEMENTARY FEEDS GIVEN TO THE CHILDREN

Particulars	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
No of complementary feed in a day							
1	10	7.9%	5	3.6%	15	5.6%	2.580 (0.630)
2	74	58.3%	81	58.3%	155	58.3%	
3	36	28.3%	44	31.7%	80	30.1%	
4	5	3.9%	7	5.0%	12	4.5%	
5	2	1.6%	2	1.4%	4	1.5%	
Quantity of complementary foods							
1 tbsp	8	6.3%	7	5.0%	15	5.6%	1.005 (0.800)
1/4th cup	46	36.2%	46	33.1%	92	34.6%	
½ cup	63	49.6%	71	51.1%	134	50.4%	
1 cup	10	7.9%	15	10.8%	25	9.4%	
Consistency of complementary food							
Thin	15	11.8%	5	3.6%	20	7.5%	6.925 (0.031)
Medium	75	59.1%	84	60.4%	159	59.8%	
Thick	37	29.1%	50	36.0%	87	32.7%	
Add extra fats, oils, sugar and jaggery after preparing complementary foods							
No	56	44.1%	55	39.6%	111	41.7%	0.559 (0.455)
Yes	71	55.9%	84	60.4%	155	58.3%	
Time taken to feed the child							
15 minutes	56	44.1%	53	38.1%	109	41.0%	6.176 (0.103)
30 minutes	66	52.0%	69	49.6%	135	50.8%	
45 minutes	4	3.1%	14	10.1%	18	6.8%	
60 minutes	1	0.8%	3	2.2%	4	1.5%	
How long do you keep complementary prepared foods stored?							
For 2-3 hours	56	44.1%	67	48.2%	123	46.2%	2.511 (0.285)
More than 4 hours	2	1.6%	0	0.0%	2	0.8%	
Not storing	69	54.3%	72	51.8%	141	53.0%	
When do you cut your vegetables?							
After washing	125	98.4%	135	97.1%	260	97.7%	0.511 (0.475)
Before washing	2	1.6%	4	2.9%	6	2.3%	

Table 4.12 presents the consumption of various food categories by gender, highlighting differences in dietary patterns. Cereals were the most consumed food group, with 83.5% of females and 85.6% of males reporting their consumption. Whole grains followed closely, consumed by 55.9% of females and 59.7% of males. Consumption of millets was relatively low, at 12.9% overall. Roots and tubers were consumed by 22% of females and 28.1% of males.

81.1% of females and 87.1% of males were consuming pulses. Nuts and oilseeds were consumed by 31.5% of females and 36% of males. Dairy products had similar consumption rates for both genders, at 29.6%. Flesh foods, which include meat, fish, poultry, and organ meats, were consumed by only 1.6% of females and 3.6% of males.

Egg consumption was also low, with 9.4% of females and 11% of males reporting consumption. Dark green leafy vegetables had identical consumption rates of 7.9% across genders. Vitamin A-rich fruits were consumed by 15.6% of females and 15.1% of males, while citrus fruits showed slightly lower consumption rates at 15.7% for females and 13.7% for males.

Vitamin A-rich vegetables were rarely consumed, with rates of 1.6% for females and 0.7% for males. Other vegetables had higher consumption rates, with 35.4% of females and 33.8% of males reporting their consumption.

TABLE 4. 12: FOOD GROUPS CONSUMED CATEGORIZED BY GENDER

	Female (N=127)		Male (N=139)		Total (N=266)	
	N	%	N	%	N	%
Cereals	106	83.5%	119	85.6%	225	84.6%
Whole Grains	71	55.9%	83	59.7%	154	57.9%
Millets	14	11.0%	20	14.4%	34	12.8%
Roots and Tubers	28	22.0%	39	28.1%	67	25.2%
Pulses	103	81.1%	121	87.1%	224	84.2%
Nuts and Oilseeds	40	31.5%	50	36.0%	90	33.8%

Dairy Products	34	26.8%	41	29.5%	75	28.2%
Flesh foods meat fish poultry organ meats	2	1.6%	5	3.6%	7	2.6%
Eggs	12	9.4%	16	11.5%	28	10.5%
Dark green leafy vegetables	10	7.9%	11	7.9%	21	7.9%
Vitamin A-rich fruits	21	16.5%	21	15.1%	42	15.8%
Citrus	20	15.7%	19	13.7%	39	14.7%
Vitamin A-rich vegetables	2	1.6%	1	0.7%	3	1.1%
Other vegetables	45	35.4%	47	33.8%	92	34.6%

The dietary habits across two age categories, i.e. 6-12 months and 12-24 months, as depicted in Table 4.13. Statistically significant differences were observed in food group consumption. Cereal consumption was significantly different between the age groups, with 89.5% of the 12-24-month-old infants consuming it compared to 72.4% of the 6-12-month-olds. Similarly, whole grain intake also showed a significant difference, with 64.7% consumption in 12-24 months infants versus 40.8% in 6-12 months infants. Consumption of roots and tubers significantly differs, with 31.1% consumption in infants aged 12-24 months compared to 10.5% in infants aged 6-12 months. Egg consumption also had a significant difference, with 13.7% consumption in 12-24 months infants versus 2.6% in 6-12 months infants. The same happened with dark green leafy vegetables, with 10% consumption in 12-24 months infants versus 2.6% in 6-12 months infants. Citrus consumption was significantly different between the age groups, with 11.1% of the infants aged 12-24 months consuming it compared to 23.7% of the infants aged 6-12 months, as well as other vegetables with 41.1% consumption in 12-24 months infants versus 18.4% in 6-12 months infants.

TABLE 4 13: FOOD GROUPS CONSUMED CATEGORIZED BY AGE CATEGORY

		Age category						
		6 - 12 months		12-24 months		Total		Chi-square (P value)
		N	%	N	%	N	%	
Cereals	No	21	27.6%	20	10.5%	41	15.4%	12.183 (0.000*)
	Yes	55	72.4%	170	89.5%	225	84.6%	
Whole Grains	No	45	59.2%	67	35.3%	112	42.1%	12.771 (0.000*)
	Yes	31	40.8%	123	64.7%	154	57.9%	
Millets	No	64	84.2%	168	88.4%	232	87.2%	0.863 (0.353)
	Yes	12	15.8%	22	11.6%	34	12.8%	
Roots and Tubers	No	68	89.5%	131	68.9%	199	74.8%	12.138 (0.000*)
	Yes	8	10.5%	59	31.1%	67	25.2%	
Pulses	No	17	22.4%	25	13.2%	42	15.8%	3.464 (0.063)
	Yes	59	77.6%	165	86.8%	224	84.2%	
Nuts and Oil-seeds	No	49	64.5%	127	66.8%	176	66.2%	0.136 (0.712)
	Yes	27	35.5%	63	33.2%	90	33.8%	
Dairy Products	No	61	80.3%	130	68.4%	191	71.8%	3.760 (0.052)
	Yes	15	19.7%	60	31.6%	75	28.2%	
Flesh foods, meat, fish, poultry, organ meats	No	76	100.0%	183	96.3%	259	97.4%	2.876 (0.090)
	Yes	0	0.0%	7	3.7%	7	2.6%	
Eggs	No	74	97.4%	164	86.3%	238	89.5%	7.041 (0.008*)
	Yes	2	2.6%	26	13.7%	28	10.5%	
Dark green leafy vegetables	No	74	97.4%	171	90.0%	245	92.1%	4.053 (0.044*)
	Yes	2	2.6%	19	10.0%	21	7.9%	

Vitamin-A rich fruits	No	59	77.6%	165	86.8%	224	84.2%	3.464 (0.063)
	Yes	17	22.4%	25	13.2%	42	15.8%	
Citrus	No	58	76.3%	169	88.9%	227	85.3%	6.923 (0.009*)
	Yes	18	23.7%	21	11.1%	39	14.7%	
Vitamin-A rich vegetables	No	74	97.4%	189	99.5%	263	98.9%	2.158 (0.142)
	Yes	2	2.6%	1	0.5%	3	1.1%	
Other vegetables	No	62	81.6%	112	58.9%	174	65.4%	12.290 (0.000*)
	Yes	14	18.4%	78	41.1%	92	34.6%	

Table 4.14 highlights the total food groups consumed, revealing significant gender differences. The prevalence of consuming at least four food groups was higher in females (27.6%) compared to males (25.2%). The proportion of males consuming exactly three food groups (30.2%) was significantly greater than that of females (17.3%). The prevalence of consuming all five food groups was marginally higher in males (14.4%) compared to females (14.2%). The Chi-square test indicates a marginally significant association between gender and total food group consumption.

TABLE 4.14: TOTAL FOOD GROUPS CONSUMED BY CHILDREN CATEGORIZED BY GENDER

Total Food Groups consumed	**Female (N=127)**		**Male (N=139)**		**Total (N=266)**		**Chi-square (P value)**
	N	**%**	**N**	**%**	**N**	**%**	
0	10	7.9%	4	2.9%	14	5.3%	16.691 (0.054)
1	6	4.7%	8	5.8%	14	5.3%	
2	15	11.8%	7	5.0%	22	8.3%	
3	22	17.3%	42	30.2%	64	24.1%	
4	35	27.6%	35	25.2%	70	26.3%	

5	18	14.2%	20	14.4%	38	14.3%	
6	13	10.2%	13	9.4%	26	9.8%	
7	6	4.7%	7	5.0%	13	4.9%	
8	0	0.0%	3	2.2%	3	1.1%	
9	2	1.6%	0	0.0%	2	0.8%	

Table 4.15 highlights the total food groups consumed, revealing significant age differences. 6-12 months children (25.0%) consuming four food groups compared to 26.8% of 12-24 months children. Additionally, 12-24-month-old children showed higher consumption across five food groups (15.3%) and three food groups (24.2%) compared to 6-12-month-old children 11.8% and 23.7%, respectively. The total food group consumption was significant ($p < 0.013$) between the age groups. These findings highlight key areas where dietary habits between these age groups potentially influence nutritional status and health outcomes.

TABLE 4.15: TOTAL FOOD GROUPS CONSUMED BY CHILDREN CATEGORIZED BY AGE

Total Food Groups consumed	6 - 12 months		12-24 months		Total		Chi-square (P value)
	N	%	N	%	N	%	
0	11	14.5%	3	1.6%	14	5.3%	20.831 (0.013*)
1	4	5.3%	10	5.3%	14	5.3%	
2	6	7.9%	16	8.4%	22	8.3%	
3	18	23.7%	46	24.2%	64	24.1%	
4	19	25.0%	51	26.8%	70	26.3%	
5	9	11.8%	29	15.3%	38	14.3%	
6	5	6.6%	21	11.1%	26	9.8%	
7	4	5.3%	9	4.7%	13	4.9%	
8	0	0.0%	3	1.6%	3	1.1%	
9	0	0.0%	2	1.1%	2	0.8%	

Table 4.16 focuses on the consumption of fruits and vegetables, showing that both genders had similar patterns overall. Females consumed other fruits slightly more (44.9%) than males (43.2%), whereas males (20.9%) had slightly lower consumption of Vitamin-A-rich fruits and vegetables than females (23.6%). Both genders exhibited comparable consumption of other fruits and vegetables (68%) and any one fruit (54.5%) overall.

TABLE 4.16: CONSUMPTION OF FRUITS AND VEGETABLES CATEGORIZED BY GENDER

	Female (N=127)		Male (N=139)		Total (N=266)	
	N	%	N	%	N	%
Other fruits	57	44.9%	60	43.2%	117	44.0%
Vitamin-A-rich fruits and vegetables	30	23.6%	29	20.9%	59	22.2%
Other fruits and vegetables	88	69.3%	93	66.9%	181	68.0%
Any one vegetable	46	36.2%	45	32.4%	91	34.2%
Any one fruit	72	56.7%	73	52.5%	145	54.5%

Generally, the eating habits for different types of fruits and vegetables were quite similar between the younger group (6-12 months) and the older group (12-24 months) shown in Table 4.17. The majority of infants in both age groups did not eat vitamin-A-rich fruits and vegetables (around 75-79%). Only a small percentage in both groups consumed them (around 21-25%). The prevalence of consuming at least one vegetable was significantly lower in the 6-12 month group (17.1%) compared to the 12-24 month group.

TABLE 4.17: CONSUMPTION OF FRUITS AND VEGETABLES CATEGORIZED BY AGE

		6 - 12 months		12-24 months		Total		Chi-square (P value)
		N	%	N	%	N	%	
Other fruits	No	44	57.9%	105	55.3%	149	56.0%	0.153 (0.696)
	Yes	32	42.1%	85	44.7%	117	44.0%	
Vitamin-A-rich fruits and vegetables	No	57	75.0%	150	78.9%	207	77.8%	0.490 (0.484)
	Yes	19	25.0%	40	21.1%	59	22.2%	
Other fruits and vegetables	No	27	35.5%	58	30.5%	85	32.0%	0.624 (0.430)
	Yes	49	64.5%	132	69.5%	181	68.0%	
Any one vegetable	No	63	82.9%	112	58.9%	175	65.8%	13.832 (0.000*)
	Yes	13	17.1%	78	41.1%	91	34.2%	
Any one fruit	No	32	42.1%	89	46.8%	121	45.5%	0.491 (0.483)
	Yes	44	57.9%	101	53.2%	145	54.5%	

Table 4.18 presents the Diet Quality Questionnaire (DQQ) indicators for males and females, highlighting their consumption patterns of various food groups. Among the children, breast milk consumption was observed by 68.8%, with no significant gender difference. Grains, starchy roots, tubers, and plantains were consumed by 87.6% of the total population, with similar proportions across genders. Beans, peas, lentils, nuts, and seeds showed a significant gender disparity, with males reporting higher consumption (92.1%) compared to females (82.7%). Dairy products were consumed by 28.2% overall, with no significant gender difference. Flesh foods had low consumption rates (2.6%), and eggs were consumed by 10.5%, both showing no significant gender differences. Vitamin-A-rich fruits and vegetables were consumed by 22.2% of participants, while other fruits and vegetables had a high consumption rate of 68%, both showing no gender differences. These findings suggest generally similar

dietary patterns between genders, except for beans and seeds consumption, which was significantly higher among males.

TABLE 4.18: DQQ INDICATORS BY GENDER

		Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
		N	%	N	%	N	%	
Breast milk	No	37	29.1%	46	33.1%	83	31.2%	0.485 (0.486)
	Yes	90	70.9%	93	66.9%	183	68.8%	
Grains, white pale starchy roots-tubers and plantains	No	17	13.4%	16	11.5%	33	12.4%	0.215 (0.643)
	Yes	110	86.6%	123	88.5%	233	87.6%	
Beans, peas, lentils, nuts and seeds	No	22	17.3%	11	7.9%	33	12.4%	5.407 (0.020*)
	Yes	105	82.7%	128	92.1%	233	87.6%	
Dairy products, milk, infant formula, yogurt, cheese	No	93	73.2%	98	70.5%	191	71.8%	0.243 (0.622)
	Yes	34	26.8%	41	29.5%	75	28.2%	
Flesh foods, meat, fish, poultry, organ meats	No	125	98.4%	134	96.4%	259	97.4%	1.059 (0.303)
	Yes	2	1.6%	5	3.6%	7	2.6%	
Eggs	No	115	90.6%	123	88.5%	238	89.5%	0.300 (0.584)
	Yes	12	9.4%	16	11.5%	28	10.5%	
Vitamin-A-rich fruits and vegetables	No	97	76.4%	110	79.1%	207	77.8%	0.293 (0.589)
	Yes	30	23.6%	29	20.9%	59	22.2%	
Other fruits and vegetables	No	39	30.7%	46	33.1%	85	32.0%	0.174 (0.677)
	Yes	88	69.3%	93	66.9%	181	68.0%	

The dietary diversity analysis revealed practices across the two age groups (12-24 months and 6-12 months) in Table 4.19. A significant portion of children consumed grains, white pale starchy, roots and tubers, and plantains (87.6%), while a smaller percentage consumed flesh foods, meat, fish, poultry, and organ meats (2.6%). Breastmilk consumption was observed in 68.8% of the children. Notably, egg consumption was relatively low (10.5%). The total dietary diversity score indicated that 33.5% of children had a score of four food groups per day. Chi-square significant associations between age category and consumption of breastmilk, grains, white pale starchy roots tubers and plantains, beans, peas, lentils, nuts and seeds and eggs.

TABLE 4.19: DQQ INDICATORS BY AGE CATEGORY

		6 - 12 months		12-24 months		Total		Chi-square (P value)
		N	%	N	%	N	%	
Breastmilk	No	8	10.5%	75	39.5%	83	31.2%	21.190 (0.000*)
	Yes	68	89.5%	115	60.5%	183	68.8%	
Grains, white pale starchy, roots tubers and plantains	No	20	26.3%	13	6.8%	33	12.4%	18.944 (0.000*)
	Yes	56	73.7%	177	93.2%	233	87.6%	
Beans, peas, lentils, nuts and seeds	No	15	19.7%	18	9.5%	33	12.4%	5.262 (0.022*)
	Yes	61	80.3%	172	90.5%	233	87.6%	
Dairy products, milk, infant formula, yogurt, cheese	No	61	80.3%	130	68.4%	191	71.8%	3.760 (0.052)
	Yes	15	19.7%	60	31.6%	75	28.2%	
Flesh foods, meat, fish, poultry, organ meats	No	76	100.0%	183	96.3%	259	97.4%	2.876 (0.090)
	Yes	0	0.0%	7	3.7%	7	2.6%	
Eggs	No	74	97.4%	164	86.3%	238	89.5%	7.041 (0.008*)
	Yes	2	2.6%	26	13.7%	28	10.5%	
	No	57	75.0%	150	78.9%	207	77.8%	0.490 (0.484)

Vitamin-A-rich fruits and vegetables	Yes	19	25.0%	40	21.1%	59	22.2%	
Other fruits and vegetables	No	27	35.5%	58	30.5%	85	32.0%	0.624 (0.430)
	Yes	49	64.5%	132	69.5%	181	68.0%	

Based on Table 4.20, the total dietary diversity scores according to DQQ indicators categorized by gender reveal interesting patterns. Around 23% of girls and 27% of boys ate three food groups. The majority of both females (38.6%) and males (28.8%) have a total dietary diversity score of four food groups per day. Overall, 33.5% of the total population has a total dietary diversity score of four food groups per day. A higher proportion of males (25.9%) consumed five food groups compared to females (18.9%). Similarly, a slightly higher percentage of males consumed six (4.3%) and seven (0.7%) food groups compared to females (5.5% and 0.0%, respectively). The association between gender and dietary diversity score is not statistically significant.

TABLE 4.20: TOTAL DDS ACCORDING TO DQQ INDICATORS CATEGORIZED BY GENDER

Total dietary diversity score	**Female (N=127)**		**Male (N=139)**		**Total (N=266)**		**Chi-square (P value)**
	N	**%**	**N**	**%**	**N**	**%**	
1	10	7.9%	5	3.6%	15	5.6%	7.928 (0.243)
2	8	6.3%	13	9.4%	21	7.9%	
3	29	22.8%	38	27.3%	67	25.2%	
4	49	38.6%	40	28.8%	89	33.5%	
5	24	18.9%	36	25.9%	60	22.6%	
6	7	5.5%	6	4.3%	13	4.9%	
7	0	0.0%	1	0.7%	1	0.4%	

The total dietary diversity scores according to DQQ indicators are categorized by age in Table 4.21. The majority of both the 6-12 months age group (36.8%) and 12-24 months (32.1%) have a total dietary diversity score of four food groups per day. Overall, 33.5% of the total population has a total dietary diversity score of four food groups per day. There was a statistically significant association between gender and dietary diversity score.

TABLE 4.21: TOTAL DDS ACCORDING TO DQQ INDICATORS CATEGORIZED BY AGE

Total dietary diversity score	6 - 12 months		12-24 months		Total		Chi-square (P value)
	N	%	N	%	N	%	
1	11	14.5%	4	2.1%	15	5.6%	18.783 (0.005*)
2	5	6.6%	16	8.4%	21	7.9%	
3	13	17.1%	54	28.4%	67	25.2%	
4	28	36.8%	61	32.1%	89	33.5%	
5	16	21.1%	44	23.2%	60	22.6%	
6	3	3.9%	10	5.3%	13	4.9%	
7	0	0.0%	1	0.5%	1	0.4%	

Table 4.22 presents the diet diversity of the children, categorized by Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF), and Minimum Acceptable Diet (MAD) by gender. The majority of both males and females did not meet the criteria for MDD (72.2%) overall, MMF (70.3%) overall, and MAD (89.5%) overall. The chi-square test results indicate no significant association between gender and diet diversity for MDD, MMF, and MAD.

TABLE 4.22: DIET DIVERSITY GENDER

		Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
		N	%	N	%	N	%	
MDD	No	96	75.6%	96	69.1%	192	72.2%	1.407 (0.235)
	Yes	31	24.4%	43	30.9%	74	27.8%	

MMF	No	89	70.1%	98	70.5%	187	70.3%	0.006 (0.940)
	Yes	38	29.9%	41	29.5%	79	29.7%	
MAD	No	111	87.4%	127	91.4%	238	89.5%	1.108 (0.293)
	Yes	16	12.6%	12	8.6%	28	10.5%	

The prevalence of MDD was 27.8% overall, with 28.9% in the 12-24 months age group and 25.0% in the 6-12 months age group (Table 4.23). MMF was present in 29.7% of the total children, with notable differences between the age groups 21.1% in 12-24 months and 51.3% in 6-12 months. The prevalence of MAD was 10.5% overall, with the 12-24 months group showing 8.9% and the 6-12 months group showing 14.5%. The Chi-square test was only significant for MMF.

TABLE 4.23: DIET DIVERSITY AGE CATEGORY

		Age category						
		6 - 12 months		**12-24 months**		**Total**		**Chi-square (P value)**
		N	**%**	**N**	**%**	**N**	**%**	
MDD	No	57	75.0%	135	71.1%	192	72.2%	0.421 (0.516)
	Yes	19	25.0%	55	28.9%	74	27.8%	
MMF	No	37	48.7%	150	78.9%	187	70.3%	23.813 (0.000*)
	Yes	39	51.3%	40	21.1%	79	29.7%	
MAD	No	65	85.5%	173	91.1%	238	89.5%	1.760 (0.185)
	Yes	11	14.5%	17	8.9%	28	10.5%	

FIGURE 4. 2: DIET DIVERSITY GENDER

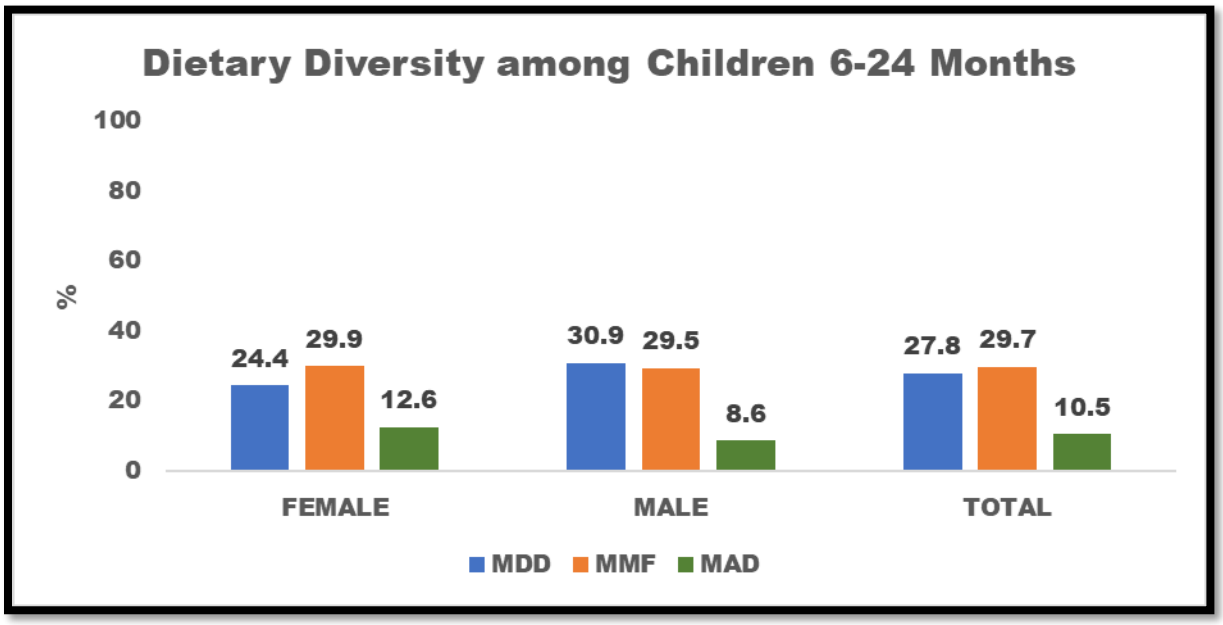
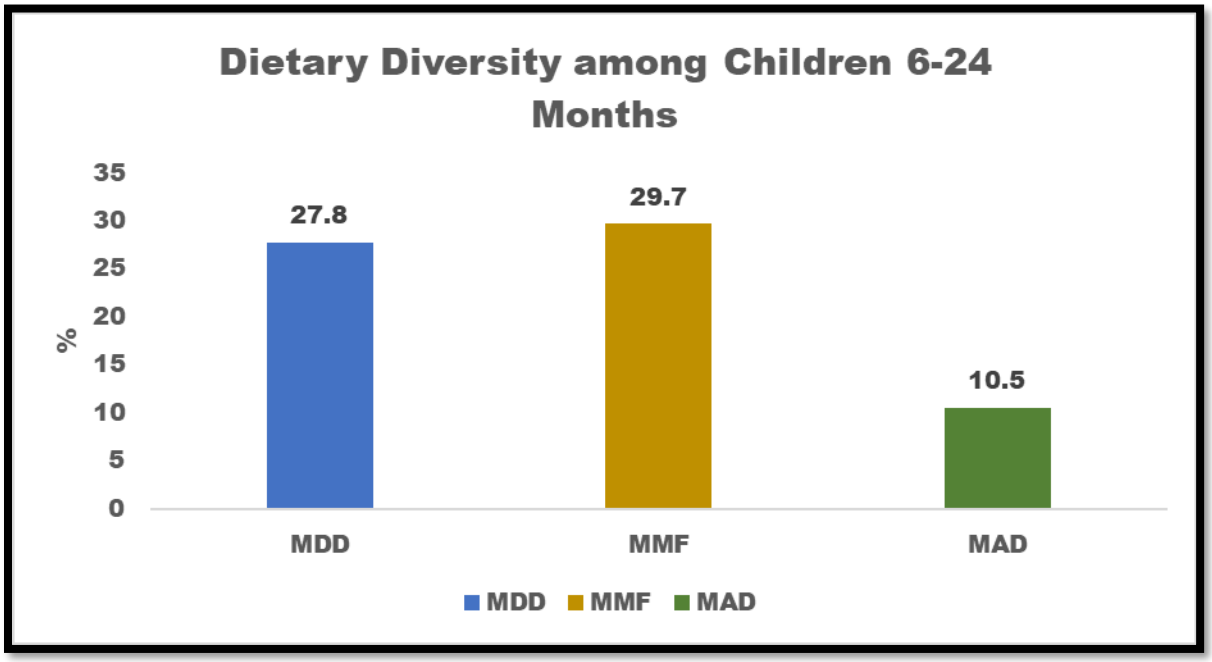


FIGURE 4. 3: DIET DIVERSITY AGE CATEGORY



The majority of both female and male children consumed eggs or flesh foods (88.3%) overall, sweet beverages (85.0%) overall, and unhealthy foods (84.6%) overall within the 6–23-month age. A significant proportion also consumed sweet foods (82.3%) overall, while a smaller percentage consumed savory and fried snacks (59.8%) overall. Furthermore, a notable percentage of children had zero vegetable or fruit consumption (80.8%) overall. Consumption of animal-source foods was observed in 36.1% of the children shown in Table 4.27. Chi-square tests indicated no significant gender differences in the consumption of these food groups.

TABLE 4.24: IYCF INDICATORS FOR CHILDREN 6-24 MONTHS CATEGORIZED BY GENDER

		Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
		N	%	N	%	N	%	
Egg and or flesh food consumption 6-23 months	No	114	89.8%	121	87.1%	235	88.3%	0.475 (0.491)
	Yes	13	10.2%	18	12.9%	31	11.7%	
Sweet beverage consumption 6-23 months	No	21	16.5%	19	13.7%	40	15.0%	0.427 (0.514)
	Yes	106	83.5%	120	86.3%	226	85.0%	
Unhealthy food consumption 6-23 months	No	23	18.1%	18	12.9%	41	15.4%	1.356 (0.244)
	Yes	104	81.9%	121	87.1%	225	84.6%	
Sweet food consumption 6-23 months	0	28	22.0%	19	13.7%	47	17.7%	3.202 (0.074)
	1	99	78.0%	120	86.3%	219	82.3%	
Savory and fried snack consumption 6-23 months	No	73	57.5%	86	61.9%	159	59.8%	0.532 (0.466)
	Yes	54	42.5%	53	38.1%	107	40.2%	
Zero vegetable or fruit consumption 6-23 months	No	26	20.5%	25	18.0%	51	19.2%	0.265 (0.607)
	Yes	101	79.5%	114	82.0%	215	80.8%	

Animal source food ASF consumption	No	82	64.6%	88	63.3%	170	63.9%	0.046 (0.831)
	Yes	45	35.4%	51	36.7%	96	36.1%	

A significant proportion of children aged 6-23 months consume sweet beverages (85.0%), unhealthy foods (84.6%), and sweet foods (82.3%) (Table 4.25). Consumption of savory and fried snacks is also notable, with 40.2% of children consuming them. A high percentage (80.8%) of children had zero vegetable or fruit consumption. Regarding animal-source food consumption, 36.1% of children consumed it. Furthermore, only 11.7% consumed eggs and/or flesh foods. These findings highlight potential areas of concern regarding the dietary habits of children in this age group. There was a significant difference in eggs and/or flesh foods, sweet beverages, unhealthy foods, sweet foods, savory and fried snacks and animal-source food consumption.

TABLE 4.25: IYCF INDICATORS FOR CHILDREN 6-24 MONTHS CATEGORIZED BY AGE

		Age category						
		6 - 12 months		**12-24 months**		**Total**		**Chi-square (P value)**
		N	**%**	**N**	**%**	**N**	**%**	
Egg and/or flesh food consumption 6-23 months	No	74	97.4%	161	84.7%	235	88.3%	8.413 (0.004*)
	Yes	2	2.6%	29	15.3%	31	11.7%	
Sweet beverage consumption 6-23 months	No	25	32.9%	15	7.9%	40	15.0%	26.556 (0.000*)
	Yes	51	67.1%	175	92.1%	226	85.0%	
Unhealthy food consumption 6-23 months	No	23	30.3%	18	9.5%	41	15.4%	17.996 (0.000*)
	Yes	53	69.7%	172	90.5%	225	84.6%	

Sweet food consumption 6-23 months	No	23	30.3%	24	12.6%	47	17.7%	11.601 (0.001*)
	Yes	53	69.7%	166	87.4%	219	82.3%	
Savory and fried snack consumption 6-23 months	No	66	86.8%	93	48.9%	159	59.8%	32.421 (0.000*)
	Yes	10	13.2%	97	51.1%	107	40.2%	
Zero vegetable or fruit consumption 6-23 months	No	18	23.7%	33	17.4%	51	19.2%	1.397 (0.237)
	Yes	58	76.3%	157	82.6%	215	80.8%	
Animal source food ASF consumption	No	59	77.6%	111	58.4%	170	63.9%	8.686 (0.003*)
	Yes	17	22.4%	79	41.6%	96	36.1%	

The frequency of assessing the consumption of ultra-processed foods among 6-24 months children is depicted in Table 4.26. The results indicate that the majority of participants rarely consume infant formula, cornflakes, and instant noodles or Maggie, with over 90% reporting "Never" for these items. In addition, biscuits appear to be the most frequently consumed ultra-processed food, with a notable percentage consuming them daily. Other items, such as bread and buns, show less consumption patterns, with a portion of participants consuming them occasionally or once a week. The statistical analysis represented no significant differences in consumption patterns based on gender.

TABLE 4.26: FOOD FREQUENCY OF ULTRA-PROCESSED FOODS

Food Item		**Female (N=127)**		**Male (N=139)**		**Total (N=266)**		**Chi-square (P value)**
		N	**%**	**N**	**%**	**N**	**%**	
Ultra-Processed Foods								
Infant formula	Daily	3	2.4%	4	2.9%	7	2.6%	3.170 (0.530)
	Never	122	96.1%	134	96.4%	256	96.2%	
	Occasionally	1	0.8%	0	0.0%	1	0.4%	

	Once a week	0	0.0%	1	0.7%	1	0.4%	
	Once in 15 days	1	0.8%	0	0.0%	1	0.4%	
Cereal (Ceralac)	Daily	0	0.0%	5	3.6%	5	1.9%	8.511 (0.130)
	Never	126	99.2%	129	92.8%	255	95.9%	
	Occasionally	0	0.0%	1	0.7%	1	0.4%	
	Once a week	0	0.0%	1	0.7%	1	0.4%	
	Once in a month	1	0.8%	1	0.7%	2	0.8%	
	Thrice a week	0	0.0%	2	1.4%	2	0.8%	
Bread, Buns	Never	78	61.4%	86	61.9%	164	61.7%	2.060 (0.841)
	Occasionally	7	5.5%	10	7.2%	17	6.4%	
	Once a week	5	3.9%	5	3.6%	10	3.8%	
	Once in 10 days	16	12.6%	11	7.9%	27	10.2%	
	Once in 15 days	10	7.9%	13	9.4%	23	8.6%	
	Once in a month	11	8.7%	14	10.1%	25	9.4%	
Biscuits	Daily	97	76.4%	105	75.5%	202	75.9%	6.694 (0.461)
	Never	17	13.4%	11	7.9%	28	10.5%	
	Occasionally	0	0.0%	3	2.2%	3	1.1%	
	Once a week	6	4.7%	8	5.8%	14	5.3%	
	Once in 10 days	1	0.8%	1	0.7%	2	0.8%	
	Once in 15 days	2	1.6%	2	1.4%	4	1.5%	
	Once in a month	0	0.0%	1	0.7%	1	0.4%	

	Thrice a week	4	3.1%	8	5.8%	12	4.5%	
Cornflakes, Chocos	Never	127	100.0%	138	99.3%	265	99.6%	0.917 (0.338)
	Occasionally	0	0.0%	1	0.7%	1	0.4%	
Sev-mamra, papad-poha (Outside)	4-5 times a week	26	20.5%	35	25.2%	61	22.9%	13.318 (0.101)
	Daily	45	35.4%	52	37.4%	97	36.5%	
	Never	34	26.8%	21	15.1%	55	20.7%	
	Occasionally	0	0.0%	3	2.2%	3	1.1%	
	Once a week	2	1.6%	5	3.6%	7	2.6%	
	Once in 10 days	0	0.0%	1	0.7%	1	0.4%	
	Once in 15 days	1	0.8%	0	0.0%	1	0.4%	
	Once in a month	2	1.6%	0	0.0%	2	0.8%	
	Thrice a week	17	13.4%	22	15.8%	39	14.7%	
Instant Noodles (Maggie)	Never	101	79.5%	123	88.5%	224	84.2%	7.701 (0.174)
	Occasionally	9	7.1%	4	2.9%	13	4.9%	
	Once a week	2	1.6%	0	0.0%	2	0.8%	
	Once in 10 days	3	2.4%	4	2.9%	7	2.6%	
	Once in 15 days	6	4.7%	6	4.3%	12	4.5%	
	Once in a month	6	4.7%	2	1.4%	8	3.0%	

Table 4.27 shows the frequency of consumption of various high-fat foods. The results show different eating patterns, with some children consuming these foods daily or multiple times a week, while others rarely or never consume them. A significant portion of the population

consumes chips (30.1%) and Kurkure (37.8%) thrice a week, while around 42.9% never consume them. Similarly, a high percentage (70.7%) never consume Choda-fadi and Mathiya, while occasional consumption is observed in 27.8% of participants. Regarding Papdi and Gathiya, daily consumption is highest at 36.5%, whereas 19.2% consume them 4-5 times a week. Namkeen Chavanu shows the highest number of foods avoided, with 84.6% of children never consuming them. The statistical values indicate no significant correlation between these eating habits.

TABLE 4.27: FOOD FREQUENCY QUESTIONNAIRE (FFQ): FOODS HIGH IN FATS

Food Item		Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
		N	%	N	%	N	%	
Foods High In Fats								
Sev	4-5 times a week	3	2.4%	5	3.6%	8	3.0%	3.140 (0.925)
	Daily	16	12.6%	16	11.5%	32	12.0%	
	Never	24	18.9%	22	15.8%	46	17.3%	
	Occasionally	9	7.1%	13	9.4%	22	8.3%	
	Once a week	18	14.2%	19	13.7%	37	13.9%	
	Once in 10 days	3	2.4%	7	5.0%	10	3.8%	
	Once in 15 days	2	1.6%	4	2.9%	6	2.3%	
	Once in a month	7	5.5%	8	5.8%	15	5.6%	
	Thrice a week	45	35.4%	45	32.4%	90	33.8%	
Chips, kurkure	4-5 times a week	5	3.9%	12	8.6%	17	6.4%	11.612 (0.169)
	Daily	6	4.7%	4	2.9%	10	3.8%	

	Never	51	40.2%	63	45.3%	114	42.9%	
	Occasionally	0	0.0%	2	1.4%	2	0.8%	
	Once a week	10	7.9%	16	11.5%	26	9.8%	
	Once in 10 days	2	1.6%	4	2.9%	6	2.3%	
	Once in 15 days	1	0.8%	2	1.4%	3	1.1%	
	Once in a month	4	3.1%	4	2.9%	8	3.0%	
	Thrice a week	48	37.8%	32	23.0%	80	30.1%	
Chodafadi, mathiya	4-5 times a week	1	0.8%	0	0.0%	1	0.4%	4.727 (0.450)
	Never	87	68.5%	101	72.7%	188	70.7%	
	Occasionally	39	30.7%	35	25.2%	74	27.8%	
	Once a week	0	0.0%	1	0.7%	1	0.4%	
	Once in 10 days	0	0.0%	1	0.7%	1	0.4%	
	Once in a month	0	0.0%	1	0.7%	1	0.4%	
Papdi, gathiya	4-5 times a week	29	22.8%	22	15.8%	51	19.2%	9.516 (0.301)
	Daily	42	33.1%	55	39.6%	97	36.5%	
	Never	22	17.3%	13	9.4%	35	13.2%	
	Occasionally	3	2.4%	3	2.2%	6	2.3%	
	Once a week	5	3.9%	8	5.8%	13	4.9%	
	Once in 10 days	0	0.0%	1	0.7%	1	0.4%	
	Once in 15 days	0	0.0%	1	0.7%	1	0.4%	
	Once in a month	0	0.0%	1	0.7%	1	0.4%	

	Thrice a week	26	20.5%	35	25.2%	61	22.9%	
Namkeen, chavanu	Never	103	81.1%	122	87.8%	225	84.6%	12.221 (0.057)
	Occasionally	2	1.6%	3	2.2%	5	1.9%	
	Once a week	8	6.3%	2	1.4%	10	3.8%	
	Once in 10 days	0	0.0%	2	1.4%	2	0.8%	
	Once in 15 days	4	3.1%	2	1.4%	6	2.3%	
	Once in a month	0	0.0%	3	2.2%	3	1.1%	
	Thrice a week	10	7.9%	5	3.6%	15	5.6%	

The consumption patterns of various high-sugar foods shown in Table 4.28. The findings suggest that a significant proportion of the population rarely or never consumes these foods. 85.0% of children never consume cream rolls or buns, while 74.8% avoid ready-to-eat sweets. Cakes and pastries show mixed consumption patterns, with 42.5% never consuming them and 42.4% consuming them occasionally. Ice cream consumption is relatively frequent, with 35.4% never consuming it, but 17.3% eating it once in 10 days. Similarly, chocolates and candies 29.5% never consume them, while 38.0% eat them daily. Regarding health drinks, 79.4% never consume them, while the occasional intake was observed in a small fraction.

TABLE 4.28: FOOD FREQUENCY OF FOODS HIGH IN SUGAR

Food Item		**Female (N=127)**		**Male (N=139)**		**Total (N=266)**		**Chi-square (P value)**
		N	**%**	**N**	**%**	**N**	**%**	
Cream-roll, Bun	Never	106	83.5%	120	86.3%	226	85.0%	2.306 (0.805)
	Occasionally	6	4.7%	4	2.9%	10	3.8%	
	Once a week	2	1.6%	4	2.9%	6	2.3%	

	Once in 10 days	7	5.5%	4	2.9%	11	4.1%	
	Once in 15 days	1	0.8%	1	0.7%	2	0.8%	
	Once in a month	5	3.9%	6	4.3%	11	4.1%	
Ice-cream	4-5 times a week	1	0.8%	2	1.4%	3	1.1%	9.307 (0.250)
	Never	45	35.4%	51	36.7%	96	36.1%	
	Occasionally	10	7.9%	20	14.4%	30	11.3%	
	Once a week	27	21.3%	20	14.4%	47	17.7%	
	Once in 10 days	23	18.1%	23	16.5%	46	17.3%	
	Once in 15 days	12	9.4%	15	10.8%	27	10.2%	
	Once in a month	9	7.1%	5	3.6%	14	5.3%	
	Thrice a week	0	0.0%	3	2.2%	3	1.1%	
Cakes, pastry	Never	54	42.5%	74	53.2%	128	48.1%	5.005 (0.287)
	Occasionally	66	52.0%	62	44.6%	128	48.1%	
	Once a week	1	0.8%	0	0.0%	1	0.4%	
	Once in 15 days	1	0.8%	1	0.7%	2	0.8%	
	Once in a month	5	3.9%	2	1.4%	7	2.6%	
Homemade sweets (Sukhdi)	4-5 times a week	8	6.3%	6	4.3%	14	5.3%	9.044 (0.339)
	Daily	9	7.1%	14	10.1%	23	8.6%	
	Never	20	15.7%	12	8.6%	32	12.0%	
	Occasionally	10	7.9%	7	5.0%	17	6.4%	
	Once a week	34	26.8%	45	32.4%	79	29.7%	
	Once in 10 days	11	8.7%	9	6.5%	20	7.5%	
	Once in 15 days	7	5.5%	14	10.1%	21	7.9%	
	Once in a month	3	2.4%	7	5.0%	10	3.8%	
	Thrice a week	25	19.7%	25	18.0%	50	18.8%	
	Never	95	74.8%	113	81.3%	208	78.2%	3.500 (0.478)
	Occasionally	28	22.0%	20	14.4%	48	18.0%	

Ready to eat sweets (Shrikhand)	Once in 15 days	1	0.8%	1	0.7%	2	0.8%	
	Once in a month	3	2.4%	4	2.9%	7	2.6%	
	Thrice a week	0	0.0%	1	0.7%	1	0.4%	
Cookies, Khari, toast	4-5 times a week	3	2.4%	4	2.9%	7	2.6%	7.943 (0.439)
	Daily	4	3.1%	5	3.6%	9	3.4%	
	Never	68	53.5%	66	47.5%	134	50.4%	
	Occasionally	2	1.6%	0	0.0%	2	0.8%	
	Once a week	15	11.8%	19	13.7%	34	12.8%	
	Once in 10 days	3	2.4%	1	0.7%	4	1.5%	
	Once in 15 days	1	0.8%	2	1.4%	3	1.1%	
	Once in a month	2	1.6%	0	0.0%	2	0.8%	
	Thrice a week	29	22.8%	42	30.2%	71	26.7%	
Chocolates, candies	4-5 times a week	6	4.7%	15	10.8%	21	7.9%	6.421 (0.600)
	Daily	51	40.2%	50	36.0%	101	38.0%	
	Never	38	29.9%	36	25.9%	74	27.8%	
	Occasionally	9	7.1%	12	8.6%	21	7.9%	
	Once a week	4	3.1%	6	4.3%	10	3.8%	
	Once in 10 days	4	3.1%	2	1.4%	6	2.3%	
	Once in 15 days	2	1.6%	5	3.6%	7	2.6%	
	Once in a month	2	1.6%	3	2.2%	5	1.9%	
	Thrice a week	11	8.7%	10	7.2%	21	7.9%	
Health drinks, born Vita, Horlicks	Daily	4	3.1%	3	2.2%	7	2.6%	5.629 (0.344)
	Never	118	92.9%	134	96.4%	252	94.7%	
	Occasionally	1	0.8%	1	0.7%	2	0.8%	
	Once a week	2	1.6%	0	0.0%	2	0.8%	
	Once in 10 days	0	0.0%	1	0.7%	1	0.4%	
	Thrice a week	2	1.6%	0	0.0%	2	0.8%	

The consumption frequency of high-salt foods shown in Table 4.29. The results indicate that a significant percentage of children either never consume these foods or consume them infrequently. For Bhungla, 26.7% of the children never consume it, whereas 36.1% consume it thrice a week. Instant soup is almost all the children avoided, with 99.2% never consuming it. Sauces have a mixed consumption pattern, with 69.2% never consuming them, while a small percentage (2.3%) consume them daily. Papad was the most frequently consumed, with 38.3% eating it thrice a week, while 33.5% never consumed it. 95.5% of children never consume pickles.

TABLE 4. 29: FOOD FREQUENCY OF FOODS HIGH IN SALT

Food Item		Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
		N	%	N	%	N	%	
Bhungla	4-5 times a week	11	8.7%	12	8.6%	23	8.6%	5.506 (0.702)
	Daily	16	12.6%	23	16.5%	39	14.7%	
	Never	38	29.9%	33	23.7%	71	26.7%	
	Occasionally	3	2.4%	4	2.9%	7	2.6%	
	Once a week	11	8.7%	9	6.5%	20	7.5%	
	Once in 10 days	2	1.6%	2	1.4%	4	1.5%	
	Once in 15 days	2	1.6%	0	0.0%	2	0.8%	
	Once in a month	1	0.8%	3	2.2%	4	1.5%	
	Thrice a week	43	33.9%	53	38.1%	96	36.1%	
Instant soup	Never	125	98.4%	139	100.0%	264	99.2%	2.206 (0.138)
	Occasionally	2	1.6%	0	0.0%	2	0.8%	
sauces	4-5 times a week	0	0.0%	1	0.7%	1	0.4%	11.702 (0.165)
	Daily	3	2.4%	3	2.2%	6	2.3%	

	Never	84	66.1%	100	71.9%	184	69.2%	
	Occasionally	5	3.9%	3	2.2%	8	3.0%	
	Once a week	12	9.4%	12	8.6%	24	9.0%	
	Once in 10 days	4	3.1%	6	4.3%	10	3.8%	
	Once in 15 days	7	5.5%	1	0.7%	8	3.0%	
	Once in a month	0	0.0%	4	2.9%	4	1.5%	
	Thrice a week	12	9.4%	9	6.5%	21	7.9%	
Papad	4-5 times a week	13	10.2%	9	6.5%	22	8.3%	6.182 (0.519)
	Daily	8	6.3%	9	6.5%	17	6.4%	
	Never	45	35.4%	44	31.7%	89	33.5%	
	Occasionally	3	2.4%	1	0.7%	4	1.5%	
	Once a week	10	7.9%	18	12.9%	28	10.5%	
	Once in 10 days	1	0.8%	1	0.7%	2	0.8%	
	Once in a month	0	0.0%	2	1.4%	2	0.8%	
	Thrice a week	47	37.0%	55	39.6%	102	38.3%	
Pickle	Daily	1	0.8%	0	0.0%	1	0.4%	9.049 (0.107)
	Never	120	94.5%	134	96.4%	254	95.5%	
	Occasionally	1	0.8%	0	0.0%	1	0.4%	
	Once a week	1	0.8%	4	2.9%	5	1.9%	
	Once in 10 days	0	0.0%	1	0.7%	1	0.4%	
	Thrice a week	4	3.1%	0	0.0%	4	1.5%	

Table 4.30 reveals several insights into the consumption of unhealthy foods categorized by gender over a 6-24 month period. Firstly, the majority of both females and males reported not consuming soft drinks, with 98.4% of females and 97.4% of males indicating they had not consumed the previous day. In terms of sweet food consumption, baked or grain-based sweets were consumed by 74% of females and 73.7% of males. Other sweets were consumed by 58.3% of females and 56.4% of males. Processed meat consumption was all the children (100%) of females and males reporting no consumption. In addition, unprocessed red meat was rarely consumed. For savory and fried snacks, 89.8% of females and 91.7% of males consume deep-fried foods. The consumption of fast food and instant noodles was also high, with 97.6% of females and 98.9% of males consumption. Packaged ultra-processed salty snacks were consumed by 59.1% of females and 62.4% of males. Overall, these findings suggest a high prevalence of unhealthy food consumption among both genders in the 6–24-month age group.

TABLE 4.30: CONSUMPTION OF UNHEALTHY FOOD CATEGORIZED BY GENDER

		Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
		N	%	N	%	N	%	
Sweet beverage consumption in 6-24 months								
Soft-drinks	No	125	98.4%	134	96.4%	259	97.4%	1.059 (0.303)
	Yes	2	1.6%	5	3.6%	7	2.6%	
Sweet food consumption in 6-24 months								
Baked or grain-based sweets	No	33	26.0%	37	26.6%	70	26.3%	0.014 (0.907)
	Yes	94	74.0%	102	73.4%	196	73.7%	
Other sweets	No	74	58.3%	76	54.7%	150	56.4%	0.348 (0.555)
	Yes	53	41.7%	63	45.3%	116	43.6%	
Processed meat consumption in 6-24 months								
Processed meat	No	127	100.0%	139	100.0%	266	100.0%	-
	No	127	100.0%	138	99.3%	265	99.6%	0.917 (0.338)

Unprocessed red meat	Yes	0	0.0%	1	0.7%	1	0.4%	
Savory and fried snack consumption in 6-24 months								
Deep fried food	No	114	89.8%	130	93.5%	244	91.7%	1.238 (0.266)
	Yes	13	10.2%	9	6.5%	22	8.3%	
Fast food and Instant noodles	No	124	97.6%	139	100.0%	263	98.9%	3.321 (0. 068)
	Yes	3	2.4%	0	0.0%	3	1.1%	
Packaged ultra-processed salty snacks	No	75	59.1%	91	65.5%	166	62.4%	1.163 (0.281)
	Yes	52	40.9%	48	34.5%	100	37.6%	

Table 4.31 indicates varying consumption patterns of different food categories among infants aged 6-24 months. Soft drinks were highly consumed, with 97.4% of the children in their diet. Processed meat was not consumed at all, with 100% of the children not consuming it. In addition, unprocessed red meat had a low consumption rate of only 0.4%. Other findings include that 91.7% of the children consumed deep-fried foods and 98.9% consumed fast food or instant noodles. Packaged ultra-processed salty snacks were consumed by 62.4% of the children. Baked or grain-based sweets had a consumption rate of 26.3%, while other sweets were at 56.4%. Chi-square analysis revealed statistically significant associations between age category and consumption of baked or grain-based sweets, other sweets, deep-fried foods, and packaged ultra-processed salty snacks, suggesting that consumption patterns vary significantly between the 6-12 month and 12–24 month age groups for these food categories.

TABLE 4.31: CONSUMPTION OF UNHEALTHY FOOD CATEGORIZED BY AGE

		6 - 12 months		**12-24 months**		**Total**		**Chi-square (P value)**
		N	**%**	**N**	**%**	**N**	**%**	
Soft-drinks	No	76	100.0%	183	96.3%	259	97.4%	2.876 (0.090)
	Yes	0	0.0%	7	3.7%	7	2.6%	

Baked or grain-based sweets	No	27	35.5%	43	22.6%	70	26.3%	4.655 (0.031*)
	Yes	49	64.5%	147	77.4%	196	73.7%	
Other sweets	No	66	86.8%	84	44.2%	150	56.4%	40.120 (0.000*)
	Yes	10	13.2%	106	55.8%	116	43.6%	
Processed meat	No	76	100.0%	190	100.0%	266	100.0%	-
Unprocessed red meat	No	76	100.0%	189	99.5%	265	99.6%	0.402 (0.526)
	Yes	0	0.0%	1	0.5%	1	0.4%	
Deep fried food	No	75	98.7%	169	88.9%	244	91.7%	6.784 (0.009*)
	Yes	1	1.3%	21	11.1%	22	8.3%	
Fast food amp Instant-noodles	No	76	100.0%	187	98.4%	263	98.9%	1.214 (0.271)
	Yes	0	0.0%	3	1.6%	3	1.1%	
Packaged ultra-processed salty snacks	No	66	86.8%	100	52.6%	166	62.4%	27.081 (0.000*)
	Yes	10	13.2%	90	47.4%	100	37.6%	

For the NCD Protect score Table 4.32, the most frequent category is three food groups per day, observing 28.6% of the total sample, with males showing a higher percentage (32.4%) compared to females (24.4%). Category 4 food group per day is the next most common, 24.4% of the total, with a higher percentage among females (26.8%) compared to males (22.3%). The NCD Risk score shows that category 1 food group per day is the most prevalent, comprising 32.7% of the total sample. Males had a higher percentage (36.7%) compared to females (28.3%). Two food groups per day also represent a substantial portion, with 27.1% of the total and similar percentages between males (26.6%) and females (27.6%). There was no significant difference in NCD Protect score and NCD Risk score between males and females.

TABLE 4.32: DQQ NCD RISK FACTORS

	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
NCD Protect score							
0	13	10.2%	4	2.9%	17	6.4%	12.210 (0.094)
1	12	9.4%	19	13.7%	31	11.7%	
2	21	16.5%	25	18.0%	46	17.3%	
3	31	24.4%	45	32.4%	76	28.6%	
4	34	26.8%	31	22.3%	65	24.4%	
5	12	9.4%	7	5.0%	19	7.1%	
6	2	1.6%	6	4.3%	8	3.0%	
7	2	1.6%	2	1.4%	4	1.5%	
NCD Risk score							
0	23	18.1%	18	12.9%	41	15.4%	7.583 (0.181)
1	36	28.3%	51	36.7%	87	32.7%	
2	35	27.6%	37	26.6%	72	27.1%	
3	23	18.1%	30	21.6%	53	19.9%	
4	8	6.3%	2	1.4%	10	3.8%	
5	2	1.6%	1	0.7%	3	1.1%	

The analysis of NCD Protect and Risk scores across two age categories (6-12 months and 12-24 months) reveals significant findings in Table 4.33. For the NCD Protect score, in the 6-12 months age category, the highest percentage also scored three food groups per day (19.7%), followed by four food groups per day (23.7%). Similarly, in the 12-24 months age category, the highest percentage of individuals consumed three food groups per day (32.1%), followed by four food groups per day (24.7%). When combined with both age groups, the total percentages for these scores were 28.6% and 24.4%, respectively.

For the NCD Risk score, in the 6-12 months age category, the highest percentages were for scores of one food groups per day (51.3%) and two food groups per day (15.8%). Also in the 12-24 months age category, the majority of individuals scored one food group per day (25.3%) and two food groups per day (31.6%). Across both age groups, the total percentages for these scores were 32.7% and 27.1%, respectively. The 6-12 month children exhibited a higher proportion with lower NCD Risk scores (0 and 1) compared to the 12-24 month children. The 12-24 month follow-up group had a notably higher percentage of individuals with scores of 2 and 3 on the NCD Risk scale. The test results indicate statistically significant differences in scores across age categories with higher NCD protection scores in children aged 6-12 months and NCD Risk scores higher in older age groups.

TABLE 4.33: DQQ NCD RISK FACTORS BY AGE

	6 - 12 months		12-24 months		Total		Chi-square (P value)
	N	%	N	%	N	%	
NCD Protect score							
0	12	15.8%	5	2.6%	17	6.4%	22.084 (0.002*)
1	6	7.9%	25	13.2%	31	11.7%	
2	16	21.1%	30	15.8%	46	17.3%	
3	15	19.7%	61	32.1%	76	28.6%	
4	18	23.7%	47	24.7%	65	24.4%	
5	7	9.2%	12	6.3%	19	7.1%	
6	2	2.6%	6	3.2%	8	3.0%	
7	0	0.0%	4	2.1%	4	1.5%	
NCD Risk score							
0	23	30.3%	18	9.5%	41	15.4%	52.870 (0.000*)
1	39	51.3%	48	25.3%	87	32.7%	
2	12	15.8%	60	31.6%	72	27.1%	
3	1	1.3%	52	27.4%	53	19.9%	

4	1	1.3%	9	4.7%	10	3.8%	
5	0	0.0%	3	1.6%	3	1.1%	

KNOWLEDGE OF PARENTS ON COMPLEMENTARY FEEDING PRACTICES

Table 4.34 indicates an alignment between mothers and fathers regarding complementary feeding practices. A majority of both mothers and fathers believe in initiating complementary feeding after 6 months (59.0% and 54.5%, respectively). Liquid or semi-solid foods are favored as the initial consistency for 7-month-old infants (91.0% and 94.4%), with solid foods being less common (4.1% and 2.6%). Furthermore, children were fed complementary foods multiple times a day, particularly during lunch (99.6% and 98.9%) and dinner (97.7% and 98.1%). The types of complementary foods given to children include breastmilk, cereal, legumes, Vitamin A-rich fruits, dairy and eggs. These findings underscore the active role of both parents in ensuring appropriate feeding practices, with mothers particularly involved in meal-related activities.

TABLE 4.34 KAP OF COMPLEMENTARY FEEDING PRACTICES IN PARENTS

Category	Mothers (N=266)		Fathers (N=266)		Chi-square (p-value)
	N	%	N	%	
From what age a child should be given complementary food					
Less than 6 months	24	9.0%	24	9.0%	1.566 (0.667)
At 6 months	75	28.2%	88	33.1%	
After completion of 6 months	157	59.0%	145	54.5%	
After 9 months	10	3.8%	9	3.4%	
Consistency of food should be given to the 7-month child					
Liquid Form	242	91.0%	251	94.4%	2.244 (0.325)
Semi-solid	13	4.9%	8	3.0%	
Solid	11	4.1%	7	2.6%	
From what age a child should be eating food by him or herself					

After 1 year	2	0.8%	2	0.8%	-
After 2 years	264	99.2%	264	99.2%	
How many times a child is fed complementary feed in a day					
Breakfast	238	89.5%	239	89.8%	0.817 (0.936)
Brunch	9	3.4%	8	3.0%	
Lunch	265	99.6%	263	98.9%	
Snack	22	8.3%	17	6.4%	
Dinner	260	97.7%	261	98.1%	
How many times do we have to give complementary feed in a day					
Breakfast	237	89.1%	236	88.7%	3.775 (0.437)
Brunch	9	3.4%	5	1.9%	
Lunch	265	99.6%	247	92.9%	
Snack	20	7.5%	11	4.1%	
Dinner	260	97.7%	261	98.1%	
Breast milk should be continued along with complementary food					
Yes	252	94.7%	255	95.9%	15.33 (0.000***)
No	14	5.3%	11	4.1%	
Which food items should be fed to the child					
Breastmilk	243	91.4%	241	90.6%	0.022 (0.999)
Cereal, roots & tuber	265	99.6%	265	99.6%	
Legumes & nuts	263	98.9%	263	98.9%	
Vitamin- A rich fruits & vegetables	261	98.1%	261	98.1%	
Dairy products	261	98.1%	261	98.1%	

Egg	88	33.1%	87	32.7%	
Other fruits & vegetables	261	98.1%	260	97.7%	
Flesh foods	51	19.2%	52	19.5%	

AGE-APPROPRIATE FEEDING PRACTICES

Table 4.35 results revealed that a lower percentage of both mothers (3.8%) and fathers (2.3%) preferred feeding milk to a 3-month-old using a cup rather than a bottle when the mother was unavailable. Similarly, only 3.4% of mothers and 2.6% of fathers encouraged a 10-month-old child to eat independently using their bowl and spoon. However, nearly all participants, including 99.2% of mothers and 98.1% of fathers, engaged in talking to a 10-month-old during meals, emphasizing the importance of interaction during feeding.

Additionally, most parents adhered to practices such as preventing a 12-month-old child from touching food or the plate, as reported by 95.5% of mothers and 97% of fathers. Expressing affection while feeding was universally practiced by both groups, with nearly 100% compliance. Lastly, spoon-feeding and holding a cup for a 24-month-old child without allowing them to touch the spoon was reported by 99.6% of mothers and 98.9% of fathers. The chi-square analysis indicated no statistically significant difference between mothers and fathers in their feeding behaviors.

TABLE 4.35: KNOWLEDGE OF PARENTS ON AGE-APPROPRIATE FEEDING PRACTICES

Age-appropriate feeding behaviours	**Mothers (N=266)**		**Fathers (N=266)**		**Chi-square (p-value)**
	N	**%**	**N**	**%**	
Feeding milk to a 3-month-old who has lost his mother with cup rather than a bottle	10	3.8%	6	2.3%	

Giving a 10-month child own bowl and spoon to eat alone	9	3.4%	7	2.6%	1.278 (0.937)
Talking to a 10-month-old child during a meal	264	99.2%	261	98.1%	
Keeping a 12-month-old child from touching her food and plate	254	95.5%	258	97.0%	
Showing affection to a 15-month-old child while feeding, showing that he/she is loved	266	100.0%	265	99.6%	
Spoon feeding and holding a cup for a 24-month-old, not allowing child to touch Spoon	265	99.6%	263	98.9%	

Table 4.36 analysis of parental practices in complementary feeding reveals trends and statistically significant differences between mothers and fathers. Mothers predominantly take charge of complementary feeding, with nearly all participating in purchasing (98.5%), selecting food items (99.2%), feeding (100%), and meal preparation (100%). In contrast, fathers show low involvement in meal preparation (1.5%). Most parents reported that their child was fed by them (92.9% of mothers and 22.9% of fathers). A significant number of fathers reported on others to feed their children (72.2%). The majority of both mothers and fathers reported that their child does use a separate bowl or plate cup for feeding (82.7% and 79.7%, respectively). Most mothers reported that they do change their child's nappy (100%) compared to fathers (26.3%). Discussions about child nutrition between parents are most commonly held monthly (49.6%) or sometimes (39.1%), with only 6.8% engaging in daily conversations.

TABLE 4.36: PARENT'S ROLE IN COMPLEMENTARY FEEDING PRACTICES

Category	Mothers (N=266)		Fathers (N=266)		Chi-square (p-value)
	N	%	N	%	
How do you participate in complementary feeding*					
Purchasing	262	98.5%	261	98.1%	203.6 (0.000***)
Selecting Food item	264	99.2%	246	92.5%	

In feeding	266	100.0%	175	65.8%	
Meal preparation	266	100.0%	4	1.5%	
Do you feed the child					
Yes	264	99.2%	35	13.2%	400.6 (0.000***)
No	2	0.8%	68	25.6%	
Sometimes	0	0.0%	163	61.3%	
How do you feed the child					
Watching TV	37	13.9%	24	9.0%	11.6 (0.020*)
Telling stories	7	2.6%	4	1.5%	
Giving Toys	13	4.9%	5	1.9%	
Giving Mobile Phone	47	17.7%	31	11.7%	
None of them	187	70.3%	212	79.7%	
Does the child use a separate bowl plate cup for feeding					
Yes	220	82.7%	212	79.7%	0.788 (0.374)
No	46	17.3%	54	20.3%	
How often do you have meals with your child					
Daily	62	23.3%	52	19.5%	5.823 (0.212)
Most Days of the week	20	7.5%	29	10.9%	
A few times a week	19	7.1%	31	11.7%	
Rarely	152	57.1%	141	53.0%	
Never	13	4.9%	13	4.9%	
How did the child receive the food yesterday					
The child was fed by me	247	92.9%	61	22.9%	293.1 (0.000***)
The child ate by him/herself	10	3.8%	10	3.8%	
The child was fed by someone else	6	2.3%	192	72.2%	
Other	3	1.1%	0	0.0%	
Not Yet Started	0	0.0%	3	1.1%	
Do you wash your child's hands before feeding					
Yes	20	7.5%	6	2.3%	132.1 (0.000***)
Sometimes	190	71.4%	72	27.1%	
No	56	21.1%	188	70.7%	
Do you wash your child's hands after feeding					
Yes	234	88.0%	65	24.4%	222 (0.000***)
Sometimes	26	9.8%	109	41.0%	
No	6	2.3%	92	34.6%	
Do you change your child's nappy					
Yes	266	100.0%	70	26.3%	310.3 (0.000***)

Sometimes	0	0.0%	109	41.0%	
No	0	0.0%	87	32.7%	
Do you make your child visit the hospital					
Yes	266	100.0%	259	97.4%	7.093 (0.028*)
Sometimes	0	0.0%	4	1.5%	
No	0	0.0%	3	1.1%	
If yes, when do you make your child visit the hospital					
Suffering from illness	266	100.0%	46	17.3%	-
For immunization	0	0.0%	0	0.0%	
Both for Immunization and suffering from illness	0	0.0%	217	81.6%	
No	0	0.0%	3	1.1%	
How would you rate your involvement in your child's feeding practices					
Not involved at all	4	1.5%	56	21.1%	486.3 (0.000***)
Slightly involved	0	0.0%	111	41.7%	
Moderately involved	2	0.8%	93	35.0%	
Quite involved	60	22.6%	4	1.5%	
Very involved	200	75.2%	2	0.8%	

(*p<0.001)**

A majority of participants (97.4%) reported spending money on food for children shown in Table 4.37. Conversely, a small percentage of participants (2.6%) reported not spending money on food for children. A statistically significant difference was observed between the categories, as indicated by the chi-square statistic of 763.5. This suggests a strong association between spending money on children's food and the distribution within these categories.

A high percentage of parents (98.5%) reported purchasing food for their children. Only 1.5% of parents reported not purchasing food for their children. A statistically significant difference was also observed between the categories. This indicates a strong association between purchasing food for children and the distribution within these categories.

TABLE 4. 37: SUPPORT DOMAINS FOR FINANCIAL SUPPORT

Category	Mother		Father		Grandparents		Other family member		None of this		Chi-square (p-value)
	N	%	N	%	N	%	N	%	N	%	
Spending money for food for children											
Yes	259	97.4%	264	99.2%	162	60.9%	101	38.0%	2	0.8%	763.5 (0.000***)
No	7	2.6%	2	0.8%	104	39.1%	165	62.0%	264	99.2%	
Purchasing food for children											
Yes	262	98.5%	264	99.2%	191	71.8%	107	40.2%	2	0.8%	795.8 (0.000***)
No	4	1.5%	2	0.8%	75	28.2%	159	59.8%	264	99.2%	

Multiple Responses (p <0.001)**

Table 4.38 shows that Mothers were predominantly responsible for preparing food for the child, with 98.9% reporting involvement. Fathers (0.4%), grandparents (69.2%), and other family members (30.8%) showed lowered participation. A statistically significant difference was observed. Fathers (88.3%) were the most active in advising or reminding mothers about feeding times, followed by grandparents (36.8%) and other family members (35%). Mothers were less involved in this aspect (3.1%), and 98.5% reported not being involved. The difference was statistically significant. Mothers played a major role in teaching children to eat independently (97.4%), followed by fathers (86.5%) and grandparents (71.1%). Other family members contributed less (39.5%), while 98.1% of respondents reported no involvement from unrelated individuals. The variation across groups was significant. Hygiene practices were primarily managed by mothers (87.6%), followed by fathers (54.1%) and grandparents (61.7%). Other family members contributed minimally (30.8%), while 88.3% reported no involvement. This difference was statistically significant.

TABLE 4.38: SUPPORT DOMAINS FOR FEEDING INVOLVEMENT

Category	Mother		Father		Grand-parents		Other family member		None of this		Chi-square (p-value)
	N	%	N	%	N	%	N	%	N	%	
Preparing food for the child											
Yes	263	98.9%	1	0.4%	184	69.2 %	82	30.8 %	2	0.8%	832.5 (0.000***)
No	3	1.1%	265	99.6 %	82	30.8 %	184	69.2 %	264	99.2%	
Gives Advice/reminds the mother on child feeding time											
Yes	3	1.1%	235	88.3 %	98	36.8 %	93	35.0 %	4	1.5%	616.5 (0.000***)
No	263	98.9 %	31	11.7 %	168	63.2 %	173	65.0 %	262	98.5 %	
Teaches the child to eat by him/herself											
Yes	259	97.4 %	230	86.5 %	189	71.1 %	105	39.5 %	5	1.9%	662.7 (0.000***)
No	7	2.6%	36	13.5 %	77	28.9 %	161	60.5 %	261	98.1 %	
Washes the child's hands before the child eats											
Yes	233	87.6 %	144	54.1 %	164	61.7 %	82	30.8 %	31	11.7 %	361.9 (0.000***)
No	33	12.4 %	122	45.9 %	102	38.3 %	184	69.2 %	235	88.3 %	

Multiple Responses (p <0.001)**

Table 4.39 presents data on the involvement of family members in helping with other chores to enable mothers to prepare food or feed their children. Fathers were the most supportive, with 94% contributing to such tasks, while only 6% did not help. Grandparents also played a significant role, with 74.4% helping and 25.6% not participating. In contrast, other family members showed lower involvement, as only 45.5%, provided help while a majority of family

members (54.5%) did not help. The test result indicates a highly significant association between the category of family members and their involvement in supporting mothers with chores.

TABLE 4.39: SUPPORT DOMAINS FOR HOUSEHOLD HELPING CHOICES AND PREPARING

Category	Father		Grandparents		Other family members		None of this		Chi-square
	N	%	N	%	N	%	N	%	
Helps in other chores so that the mother can prepare food or feed the child									
Yes	250	94.0%	198	74.4%	121	45.5%	0	0.0%	535 (0.000***)
No	16	6.0%	68	25.6%	145	54.5%	266	100.0%	

Multiple Responses (p <0.001)**

Table 4.40 reveals insights into parental discussions and support regarding child nutrition. Monthly discussions about child nutrition occur in approximately half of both mothers (49.6%) and fathers (50.0%). Emotional and practical support related to child feeding was offered occasionally by 51.9% of mothers and 51.1% of fathers. A significant majority of both mothers (94.4%) and fathers (99.2%) have not attended parenting or nutrition education programs influencing their knowledge about cold feeding practices. A statistically significant difference between mothers and fathers attending parenting or nutrition education programs was seen.

TABLE 4.40: COMMUNICATION AND SUPPORT ON PARENTAL FEEDING

Category	Mothers (N=266)		Fathers (N=266)		Chi-square (p-value)
	N	%	N	%	
How often do you discuss your child's nutrition and feeding practices with your Partner					
Daily	18	6.8%	16	6.0%	1.2 (0.944)
Weekly	2	0.8%	2	0.8%	

Monthly	132	49.6%	133	50.0%	
Sometimes	104	39.1%	100	37.6%	
Rarely	8	3.0%	12	4.5%	
Never	2	0.8%	3	1.1%	
Do you provide emotional and practical support to your partner in matters related to child feeding and nutrition					
Yes regularly	14	5.3%	14	5.3%	1.819 (0.610)
Occasionally	138	51.9%	136	51.1%	
Sometimes	113	42.5%	112	42.1%	
No, not at all	1	0.4%	4	1.5%	
Have you attended any parenting or nutrition education programs that have influenced your knowledge about cold feeding practices					
Yes	15	5.6%	2	0.8%	10.27 (0.001**)
No	251	94.4%	264	99.2%	

The data in Table 4.41 indicates that the majority of both mothers (99.2%) and fathers (100%) reported not facing cultural or societal norms that affect their involvement in their child's nutrition. A low number of mothers (0.4%) indicated facing such challenges, with specific reasons such as cultural myths and issues with family members. No statistically significant association between parental status and the perception of these challenges.

TABLE 4. 41: CHALLENGES AND BARRIERS FACED BY PARENTS

Category	Mothers (N=266)		Fathers (N=266)		Chi-square (p-value)
	N	%	N	%	
Do you face any cultural or societal norms that affect your ability to be involved in your child's nutrition					
Yes	2	0.4%	0	0.0%	2.008 (0.156)
No	264	99.2%	266	100.0%	

Reason for facing any cultural or societal norms that affect your ability to be involved in your child's nutrition					
Cultural Myths	1	0.4%	0	0.0%	-
Issues with family members	1	0.4%	0	0.0%	

Table 4.42 data presented in the tables provides a comparative analysis of feeding behaviors and practices among male and female infants in different feeding styles, including mother's milk feeding, father's milk feeding, and semi-solid feeding. The findings indicate variations in mean scores and standard deviations for different feeding methods such as feeding on demand, parent-led feeding, persuasive feeding, using food to calm, and using non-food rewards. In the context of mother's milk feeding, feeding on demand exhibited the highest mean score among females (4.13) compared to males (1.23), indicating that female infants were fed more frequently on demand than males. Parent-led feeding and persuasive feeding have relatively similar means across genders, suggesting that these feeding strategies were used consistently irrespective gender of the child. However, using food to calm showed slightly lower mean values for both groups. Similarly, in the semi-solids feeding version, the family meal environment had high mean scores in females (3.65) and males (3.71), reflecting the importance of structured meal settings in infant feeding behaviors. Parent-led feeding and persuasive feeding also showed comparable means, while using non-food rewards had the lowest mean score.

TABLE 4.42: FEEDING PRACTICES AND STRUCTURED QUESTIONNAIRE FOR MOTHER ACCORDING TO GENDER

	Female		Male		Total	
	Mean	**Standard Deviation**	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mother Milk feeding						
Feeding on Demand	4.13	1.17	4.04	1.23	4.08	1.20
Parent led feeding	2.19	0.61	2.18	0.66	2.18	0.64
Persuasive feeding	2.24	0.81	2.41	0.97	2.33	0.90

Using food to calm	1.8	0.9	1.7	1.0	1.8	0.9
Semi-solids feeding version						
Feeding on demand	4.06	0.71	4.06	0.77	4.06	0.74
Family Meal Environment	3.65	0.97	3.71	0.79	3.68	0.88
Parent led feeding	2.41	0.73	2.42	0.72	2.42	0.73
Persuasive feeding	2.77	0.73	2.91	0.73	2.84	0.73
Using Food to calm	1.21	0.55	1.28	0.72	1.25	0.65
Using non-food rewards	1.04	0.19	1.10	0.40	1.07	0.32

For father's milk feeding in Table 4.43, feeding on demand was observed to be relatively balanced between genders, with mean scores of females (2.97) and males (3.00). Parent-led feeding and persuasive feeding followed a similar trend, but using food to calm was notably lower, highlighting that fathers less frequently used this strategy. In the semi-solids feeding version, feeding on demand remained stable across both genders with a mean of approximately 3.73. Furthermore, in the family meal environment, both male and female infants showed high mean scores of 3.53 and 3.59, respectively. Parent-led feeding and persuasive feeding scores were consistent while using non-food rewards was minimally employed.

TABLE 4.43: FEEDING PRACTICES AND STRUCTURED QUESTIONNAIRE FOR FATHER ACCORDING TO GENDER

	Female		**Male**		**Total**	
	Mean	**Standard Deviation**	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Father milk feeding						
Feeding on demand	2.97	0.48	3.04	0.54	3.00	0.51
Parent led feeding	2.33	0.29	2.30	0.33	2.31	0.31
Persuasive feeding	1.26	0.78	1.33	0.87	1.30	0.83
Using food to calm	1.08	0.29	1.15	0.52	1.12	0.43

Semi-solids feeding version						
Feeding on demand	3.73	0.67	3.74	0.66	3.73	0.66
Family Meal Environment	3.53	1.04	3.59	0.87	3.56	0.96
Parent led feeding	1.90	0.45	1.90	0.57	1.90	0.52
Persuasive feeding	1.78	0.80	1.89	0.87	1.84	0.84
Using food to calm	1.06	0.18	1.11	0.40	1.08	0.32
Using non-food rewards	1.01	0.10	1.03	0.18	1.02	0.15

Table 4.44 findings indicate a variation in feeding practices across different age groups and feeding methods. When mothers used milk feeding, Feeding on Demand was most prevalent, with a mean of 4.08, while using Food to Calm was the least, with a mean of 1.8. For semi-solid feeding by mothers, Feeding on Demand had a mean of 4.06, whereas Using Non-Food Rewards was employed the least at 1.07. In fathers' milk feeding, Feeding on Demand showed a mean of 3.00, while "Using Food to Calm" was the lowest, with a mean of 1.12. For semi-solid feeding by fathers, "Feeding on Demand" was most reported at a mean of 3.73, while "Using Non-Food Rewards" was the least, at 1.02. These results indicate the need to understand the implications of different feeding practices on child health and development.

TABLE 4.44: FEEDING PRACTICES AND STRUCTURED QUESTIONNAIRE FOR PARENTS ACCORDING TO AGE CATEGORY

	Age category					
	6 - 12 months		**12-24 months**		**Total**	
	Mean	**Standard Deviation**	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mother Milk feeding						
Feeding on Demand	4.55	0.80	3.89	1.28	4.08	1.20
Parent led feeding	2.04	0.56	2.24	0.66	2.18	0.64

Persuasive feeding	2.28	0.87	2.35	0.91	2.33	0.90
Using food to calm	2.0	0.9	1.6	0.9	1.8	0.9
Semi-solids feeding version						
Feeding on demand	4.00	0.92	4.09	0.66	4.06	0.74
Family Meal Environment	3.15	1.01	3.90	0.72	3.68	0.88
Parent led feeding	2.50	0.81	2.38	0.69	2.42	0.73
Persuasive feeding	2.65	0.80	2.92	0.69	2.84	0.73
Using Food to calm	1.21	0.63	1.26	0.65	1.25	0.65
Using non-food rewards	1.05	.24	1.08	0.35	1.07	.32
Father milk feeding						
Feeding on demand	3.06	0.37	2.98	0.55	3.00	0.51
Parent led feeding	2.26	0.26	2.33	0.33	2.31	0.31
Persuasive feeding	1.21	0.67	1.34	0.88	1.30	0.83
Using food to calm	1.14	0.45	1.11	0.42	1.12	0.43
Semi-solids feeding version						
Feeding on demand	3.61	0.79	3.78	0.60	3.73	0.66
Family Meal Environment	2.90	1.08	3.83	0.75	3.56	0.96
Parent led feeding	1.83	0.40	1.93	0.56	1.90	0.52
Persuasive feeding	1.53	0.67	1.96	0.87	1.84	0.84
Using food to calm	1.09	0.38	1.08	0.29	1.08	0.32
Using non-food rewards	1.01	0.10	1.02	0.16	1.02	0.15

Table 4.45 highlights the differences in parental demandingness and responsiveness based on the gender of the child. Mothers exhibited slightly higher demandingness scores for male children with a mean of 2.40 compared to female children with a mean of 2.35. Similarly, fathers showed higher demandingness for male children with a mean of 1.96 than for female children with a mean of 1.91. Also, responsiveness scores were higher for female children across both parents. Mothers show greater responsiveness to female children with a mean of 1.20 than male children with a mean of 1.15, while fathers also showed higher responsiveness to female children with a mean of 1.73 compared to male children with a mean of 1.67. Overall, the total mean suggests that mothers are slightly more demanding with a mean of 2.37 and responsive with a mean of 1.18 than fathers Demandingness with a mean of 1.94 and Responsiveness with a mean of 1.70.

TABLE 4.45: PARENTAL DEMANDINGNESS AND RESPONSIVENESS BASED ON THE GENDER

	Female		**Male**		**Total**	
	Mean	**Standard Deviation**	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mother Demandingness	2.35	0.33	2.40	0.41	2.37	0.37
Mother Responsiveness	1.20	0.27	1.15	0.25	1.18	0.26
Father Demandingness	1.91	0.20	1.96	0.26	1.94	0.23
Father Responsiveness	1.73	0.36	1.67	0.38	1.70	0.37

Table 4.46 presents for mother demandingness, the mean was slightly higher in the 12-24 months children which is 2.39 compared to the 6-12 months children which is 2.34, with an overall mean of 2.37. Mother responsiveness showed a different pattern, with a higher mean in the 6-12 months children which is 1.29 compared to the 12-24 months children which is 1.13, and an overall mean of 1.18. Father demandingness also presented a similar trend, with

a mean of 1.98 in the 12-24 months children and 1.82 in the 6-12 months children the total mean for father demandingness was 1.94. Also, father responsiveness had a mean of 1.63 in the 12-24 months children and a higher mean of 1.88 in the 6-12 months children, a total mean of 1.70.

TABLE 4.46: PARENTAL DEMANDINGNESS AND RESPONSIVENESS BASED ON THE AGE

	Age category					
	6 - 12 months		12-24 months		Total	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Mother Demandingness	2.34	0.36	2.39	0.38	2.37	0.37
Mother Responsiveness	1.29	0.29	1.13	0.23	1.18	0.26
Father Demandingness	1.82	0.21	1.98	0.23	1.94	0.23
Father Responsiveness	1.88	0.37	1.63	0.35	1.70	0.37

Table 4.47 presents the distribution of feeding styles among mothers and fathers, categorized by gender. For mothers, the most prevalent feeding style was the indulgent feeding style, reported by 37% of females and 33.8% of males. Authoritarian feeding style was the second most common, observed in 27.6% of females and 33.8% of males. Uninvolved feeding style was reported by 18.9% of females and 20.1% of males, while authoritative feeding style was the least common, observed in 16.5% of females and 12.2% of males. The mother feeding styles show no statistically significant difference between genders.

For fathers, authoritarian feeding style was most frequent, reported by 37.8% of females and 40.3% of males. Indulgent feeding style followed nearly observed in 39.4% of females and 32.4% of males. Authoritative feeding style was less common, observed in 11.8% of females and 14.4% of males, while the uninvolved feeding style was least prevalent in 11% of females and 12.9% of males. The father feeding styles show no significant gender-based differences in

feeding styles. These findings suggest that indulgent and authoritarian feeding styles are predominant among both mothers and fathers, with no significant variation based on gender.

TABLE 4.47: THE DISTRIBUTION OF FEEDING STYLES AMONG MOTHERS AND FATHERS CATEGORIZED BY GENDER

		Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
		N	%	N	%	N	%	
Mother Feeding style	Authoritarian Feeding Style	35	27.6%	47	33.8%	82	30.8%	1.947 (0.583)
	Authoritative Feeding Style	21	16.5%	17	12.2%	38	14.3%	
	Indulgent Feeding Style	47	37.0%	47	33.8%	94	35.3%	
	Uninvolved Feeding Style	24	18.9%	28	20.1%	52	19.5%	
Father Feeding style	Authoritarian Feeding Style	48	37.8%	56	40.3%	104	39.1%	1.555 (0.670)
	Authoritative Feeding Style	15	11.8%	20	14.4%	35	13.2%	
	Indulgent Feeding Style	50	39.4%	45	32.4%	95	35.7%	
	Uninvolved Feeding Style	14	11.0%	18	12.9%	32	12.0%	

Table 4.48 shows feeding styles among parents based on the age of the children. For mother demandingness, 45.1% were categorized as high demandingness. Mother responsiveness showed that 49.6% were high responsiveness. Father demandingness indicated that 52.3%

were highly demandingness, while father responsiveness showed that 48.9% were highly responsive. The analysis revealed a significant association between both father demandingness and father responsiveness categories.

TABLE 4.48: THE DISTRIBUTION OF FEEDING STYLES CATEGORY AMONG MOTHERS AND FATHERS CATEGORIZED BY AGE

Age category								
		6 - 12 months		12-24 months		Total		Chi-square (P value)
		N	%	N	%	N	%	
Mother Demandingness category	High demandingness	37	48.7%	83	43.7%	120	45.1%	0.548 (0.459)
	Low demandingness	39	51.3%	107	56.3%	146	54.9%	
Mother Responsiveness category	High responsiveness	51	67.1%	81	42.6%	132	49.6%	13.007 (0.000*)
	Low responsiveness	25	32.9%	109	57.4%	134	50.4%	
Father Demandingness category	High demandingness	19	25.0%	120	63.2%	139	52.3%	31.681 (0.000*)
	Low demandingness	57	75.0%	70	36.8%	127	47.7%	
Father Responsiveness category	High responsiveness	51	67.1%	79	41.6%	130	48.9%	14.156 (0.000*)
	Low responsiveness	25	32.9%	111	58.4%	136	51.1%	

The study assessed parental demandingness and responsiveness across genders shown in Table 4.49. Mother's demandingness was high in 45.1% of cases, with no significant difference between females (44.1%) and males (46.0%). Similarly, maternal responsiveness was higher in females (53.5%) than in males (46.0%), but the difference was not statistically significant.

Table 4.49 For fathers, high demandingness was reported in 52.3% of cases, with 49.6% for female children and 54.7% for male children. Paternal responsiveness was slightly higher for female children (51.2%) compared to male children (46.8%), but again, this difference was not significant. These findings suggest that parental demandingness and responsiveness do not significantly vary based on the child's gender.

TABLE 4.49: THE DISTRIBUTION OF FEEDING STYLES CATEGORY AMONG MOTHERS AND FATHERS CATEGORIZED BY GENDER

	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
Mother Demandingness category							
High demandingness	56	44.1%	64	46.0%	120	45.1%	0.102 (0.750)
Low demandingness	71	55.9%	75	54.0%	146	54.9%	
Mother Responsiveness category							
High responsiveness	68	53.5%	64	46.0%	132	49.6%	1.493 (0.222)
Low responsiveness	59	46.5%	75	54.0%	134	50.4%	
Father Demandingness category							
High demandingness	63	49.6%	76	54.7%	139	52.3%	0.684 (0.408)
Low demandingness	64	50.4%	63	45.3%	127	47.7%	
Father Responsiveness category							
High responsiveness	65	51.2%	65	46.8%	130	48.9%	0.519 (0.471)
Low responsiveness	62	48.8%	74	53.2%	136	51.1%	

Table 4.50 specifically, for mother feeding styles, the Authoritarian feeding style was observed in 32.1% of the 12-24 months age category. Indulgent feeding style was more prevalent in the 6-12 months category was 46.1%. For father feeding styles, the Authoritarian feeding style was more prevalent in the 12-24 months category, was 47.9%. Indulgent feeding style was more prevalent in the 6-12 months category, was 59.2%. The data indicate a significant association between feeding styles and age categories for both mothers and fathers.

For mothers, Authoritarian, Authoritative, Indulgent, and Uninvolved feeding styles were observed at 30.8%, 14.3%, 35.3%, and 19.5%, respectively. Similarly, for fathers, Authoritarian, Authoritative, Indulgent, and Uninvolved feeding styles at rates of 39.1%, 13.2%, 35.7%, and 12.0%, respectively. These findings suggest a potential influence of parental feeding approaches on child development. The results indicate a significant association between parental feeding styles and the age of the child.

TABLE 4.50: FEEDING STYLES CATEGORIZED BY AGE

		Age category						Chi-square (P value)
		6 - 12 months		12-24 months		Total		
		N	%	N	%	N	%	
Mother Feeding style	Authoritarian Feeding Style	21	27.6%	61	32.1%	82	30.8%	18.327 (0.000*)
	Authoritative Feeding Style	16	21.1%	22	11.6%	38	14.3%	
	Indulgent Feeding Style	35	46.1%	59	31.1%	94	35.3%	
	Uninvolved Feeding Style	4	5.3%	48	25.3%	52	19.5%	
Father Feeding style	Authoritarian Feeding Style	13	17.1%	91	47.9%	104	39.1%	33.100 (0.000*)
	Authoritative Feeding Style	6	7.9%	29	15.3%	35	13.2%	

	Indulgent Feeding Style	45	59.2%	50	26.3%	95	35.7%	
	Uninvolved Feeding Style	12	15.8%	20	10.5%	32	12.0%	

The anthropometric indicators analyzed in Table 4.51 revealed a statistically significant difference in weight and height between males and females. Specifically, males exhibited a higher mean weight (9.1 kg) compared to females (8.3 kg), and a higher mean height (75.1 cm) compared to females (72.8 cm). However, there were no significant differences observed in WAZ, HAZ, WHZ, and BAZ scores between the genders.

TABLE 4. 51: GENDERWISE MEAN ANTHROPOMETRIC MEASUREMENTS

Gender (N=266)	Anthropometric Indicators		T-test
	Mean	SD	
Weight(kg)			
Male	9.1	1.4	4.561 (0.000***)
Female	8.3	1.5	
Total	8.8	1.5	
Height(cm)			
Male	75.1	5.2	3.398 (0.001***)
Female	72.8	5.9	
Total	74.0	5.6	
WAZ			
Male	0.5	1.3	0.056 (0.955)
Female	0.5	1.1	
HAZ			
Male	1.5	1.2	0.645 (0.519)
Female	1.4	1.1	
WHZ			
Male	1.1	1.1	0.028 (0.978)
Female	1.1	1.0	
BAZ			
Male	0.3	1.3	0.382 (0.703)
Female	0.4	1.1	

(*p <0.001)**

The anthropometric indicators analyzed in Table 4.52 show significant differences between children aged 6-12 months and those aged 12-24 months. The mean weight of the 6-12 months age group was 7.72 kg, while the 12-24 months had a significantly higher mean weight of 9.16 kg. Similarly, the mean height of children aged 6-12 months was 68.34 cm, compared to 76.22 cm for the 12–24 month group, with a significant difference. Regarding nutritional indices, the weight-for-height Z-score (WHZ) showed no significant difference between the two groups, indicating similar weight-for-height distribution. However, the height-for-age Z-score (HAZ) was significantly higher in the 12-24-month-old children, suggesting improved linear growth with age. The weight-for-age Z-score (WAZ) also showed a significant increase in the 12-24-month-old children, indicating an overall improvement in weight for age. Also, BMI-for-age Z-score (BAZ) did not show a significant difference, implying that BMI distribution remained relatively stable between the two age groups. These results suggest that while weight and height increase significantly with age, some nutritional indicators like WHZ and BAZ remain stable, possibly reflecting uniform dietary patterns or genetic factors influencing growth trends in the population.

TABLE 4. 52: AGEWISE MEAN ANTHROPOMETRIC MEASUREMENTS

Age category	N	Mean	SD	T-test
Weight(kg)				
6-12 Months	76	7.72	1.3	8.045 (0.000***)
12-24 Months	190	9.16	1.3	
Height(cm)				
6-12 Months	76	68.34	3.9	13.223 (0.000***)
12-24 Months	190	76.22	4.5	
WHZ				
6-12 Months	76	0.37	1.2	1.269 (0.206)
12-24 Months	190	0.58	1.1	
HAZ				
6-12 Months	76	1.02	1.0	3.978 (0.000***)
12-24 Months	190	1.63	1.1	
WAZ				
6-12 Months	76	0.89	1.1	2.297 (0.022**)
12-24 Months	190	1.22	1.0	

BAZ				
6-12 Months	76	0.40	1.3	0.544 (0.587)
12-24 Months	190	0.31	1.1	

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

Table 4.53 depicts the prevalence of malnutrition among children. The majority of children (82.7%) fell within the normal (weight-for-height) range, with a slightly higher proportion among females (86.6%) compared to males (79.1%). Severe wasting was observed in 1.9% of the total population, affecting 1.6% of females and 2.2% of males. Moderate wasting was observed in 6.8% of children, while mild wasting was prevalent in 25.6% of the total children. Additionally, 7.1% of children were identified as being at a possible risk of being overweight, with a higher prevalence among males (8.6%) compared to females (5.5%). Obesity was detected in only 0.8% of the population, affecting two male children.

Table 4.53 indicates that 65.8% of children had a normal height-for-age, with 70.9% of females and 61.2% of males falling within this category. However, stunting was prevalent in 24.1% of children, with a higher proportion among males (27.3%) compared to females (20.5%). Severe stunting was observed in 10.2% of children, affecting 8.7% of females and 11.5% of males. When categorized by severity, mild stunting was found in 29.3% of children, while 36.5% had normal (height-for-age) (Table 4.54).

In terms of Underweight (low weight-for-age), 78.9% of the children were classified as normal, with a slightly higher proportion among females (81.9%) compared to males (76.3%). Underweight prevalence was 17.3%, with 19.4% of males and 15.0% of females falling under this category. Severe underweight was recorded in 3.8% of children, affecting 3.1% of females and 4.3% of males. Among those categorized by severity, mild underweight was observed in 35.0% of children, while 44.0% had a normal weight-for-age (Table 4.54) (Figure 4.4).

TABLE 4.53: PREVALENCE OF MALNUTRITION AMONG CHILDREN ACCORDING TO GENDER

Indicator	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
Wasting category							
Normal	110	86.6%	110	79.1%	220	82.7%	3.871 (0.568)
Obesity	0	0.0%	2	1.4%	2	0.8%	
Overweight	1	0.8%	1	0.7%	2	0.8%	
Possible risk of overweight	7	5.5%	12	8.6%	19	7.1%	
Severe Wasting	2	1.6%	3	2.2%	5	1.9%	
Wasting	7	5.5%	11	7.9%	18	6.8%	
Stunting Category							
Normal	90	70.9%	85	61.2%	175	65.8%	2.783 (0.249)
Severe stunting	11	8.7%	16	11.5%	27	10.2%	
Stunting	26	20.5%	38	27.3%	64	24.1%	
Underweight category							
Normal	104	81.9%	106	76.3%	210	78.9%	1.272 (0.530)
Severe underweight	4	3.1%	6	4.3%	10	3.8%	
Underweight	19	15.0%	27	19.4%	46	17.3%	

FIGURE 4. 4: PREVALENCE OF MALNUTRITION AMONG CHILDREN ACCORDING TO GENDER

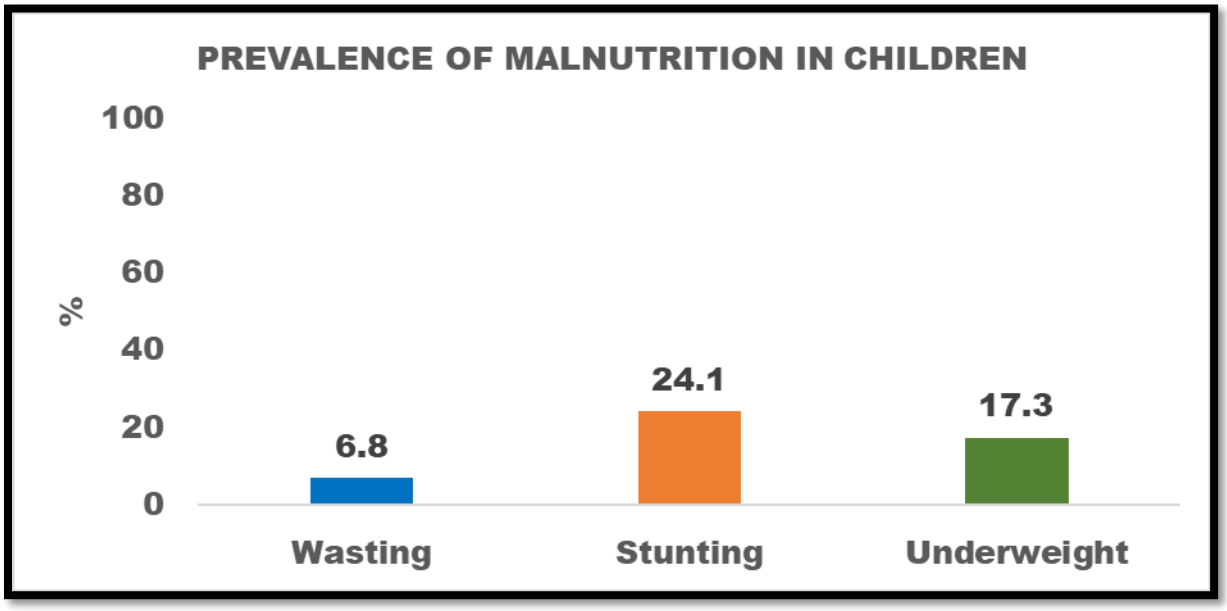


TABLE 4.54: SEVERITY OF MALNUTRITION AMONG CHILDREN ACCORDING TO GENDER

Indicator	Female (N=127)		Male (N=139)		Total (N=266)		Chi-square (P value)
	N	%	N	%	N	%	
Wasting severity							
Mild wasting	32	25.2%	36	25.9%	68	25.6%	4.212 (0.648)
Moderate wasting	7	5.5%	11	7.9%	18	6.8%	
Normal	78	61.4%	74	53.2%	152	57.1%	
Obesity	0	0.0%	2	1.4%	2	0.8%	
Overweight	1	0.8%	1	0.7%	2	0.8%	
Possible risk of overweight	7	5.5%	12	8.6%	19	7.1%	
Severe Wasting	2	1.6%	3	2.2%	5	1.9%	
Stunting severity							

Mild Stunting	44	34.6%	34	24.5%	78	29.3%	4.183 (0.242)
Normal	46	36.2%	51	36.7%	97	36.5%	
Severe stunting	11	8.7%	16	11.5%	27	10.2%	
Stunting	26	20.5%	38	27.3%	64	24.1%	
Underweight Severity							
Mild Underweight	50	39.4%	43	30.9%	93	35.0%	2.474 (0.480)
Normal	54	42.5%	63	45.3%	117	44.0%	
Severe underweight	4	3.1%	6	4.3%	10	3.8%	
Underweight	19	15.0%	27	19.4%	46	17.3%	

Table 4.55, the relationship between maternal feeding styles (authoritarian, authoritative, indulgent, and uninvolved) and nutritional status indicators (underweight, stunting, and wasting). For underweight, the majority of children across all feeding styles fell within the normal weight range, ranging from 71.2% (uninvolved) to 84.2% (authoritative). The prevalence of underweight varied between 14.6% (authoritarian) and 21.2% (uninvolved), while severe underweight was highest among children with uninvolved mothers (7.7%). However, no significant association between maternal feeding styles and underweight status.

In terms of stunting, children in the authoritarian group had the highest proportion of normal height-for-age (78.0%), whereas the indulgent feeding style had the lowest (57.4%). The highest prevalence of stunting was observed in the indulgent group (34.0%), while severe stunting was most frequent in the uninvolved group (21.2%). A statistically significant association between feeding styles and stunting, suggests that maternal feeding behaviors influence linear growth outcomes.

For wasting, the proportion of children with a normal weight-for-height ranged from 73.1% (uninvolved) to 86.8% (authoritative). Wasting prevalence varied from 4.9% (authoritarian) to 11.5% (uninvolved), with obesity and overweight remaining low across all groups but slightly elevated among children with uninvolved mothers. No significant association between feeding styles and wasting.

TABLE 4. 55: RELATIONSHIP BETWEEN MATERNAL FEEDING STYLES AND NUTRITIONAL STATUS INDICATORS IN MOTHER

	Mother Feeding style								
	Authoritarian Feeding Style		Authoritative Feeding Style		Indulgent Feeding Style		Uninvolved Feeding Style		Chi-square (P value)
	N	%	N	%	N	%	N	%	
Underweight category									
Normal	69	84.1%	32	84.2%	72	76.6%	37	71.2%	7.331 (0.291)
Severe underweight	1	1.2%	0	0.0%	5	5.3%	4	7.7%	
Underweight	12	14.6%	6	15.8%	17	18.1%	11	21.2%	
Stunting Category									
Normal	64	78.0%	24	63.2%	54	57.4%	33	63.5%	19.112 (0.004*)
Severe stunting	5	6.1%	3	7.9%	8	8.5%	11	21.2%	
Stunting	13	15.9%	11	28.9%	32	34.0%	8	15.4%	
Wasting category									
Normal	69	84.1%	33	86.8%	80	85.1%	38	73.1%	20.375 (0.158)
Obesity	1	1.2%	1	2.6%	0	0.0%	0	0.0%	
Overweight	0	0.0%	0	0.0%	0	0.0%	2	3.8%	
Possible risk of overweight	5	6.1%	1	2.6%	7	7.4%	6	11.5%	
Severe Wasting	3	3.7%	0	0.0%	2	2.1%	0	0.0%	
Wasting	4	4.9%	3	7.9%	5	5.3%	6	11.5%	

FIGURE 4. 5: RELATIONSHIP BETWEEN MATERNAL FEEDING STYLES AND NUTRITIONAL STATUS INDICATORS IN MOTHER

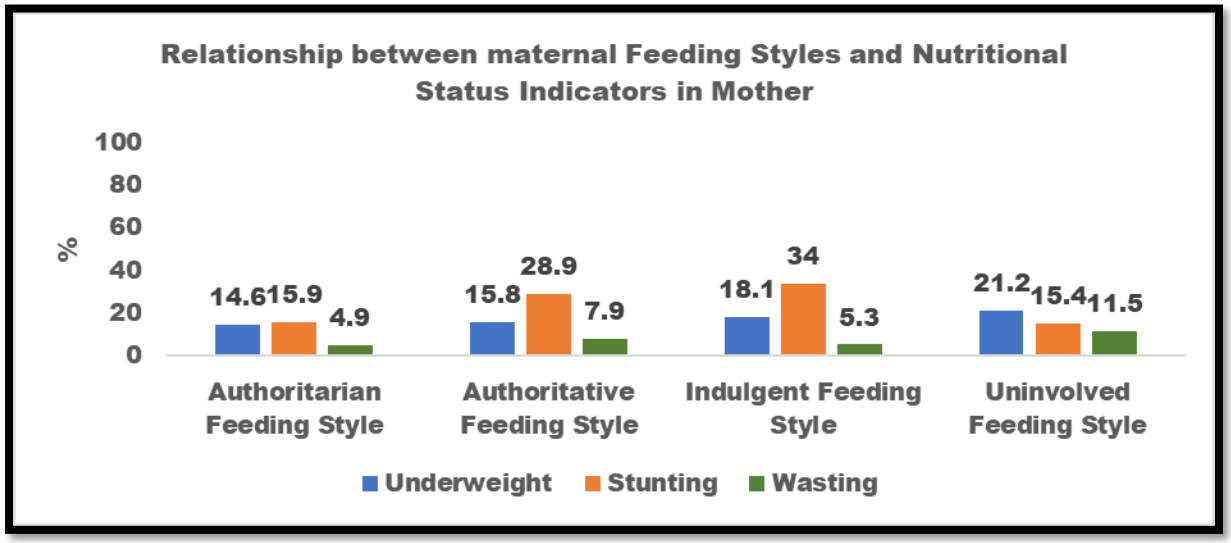


FIGURE 4. 6: RELATIONSHIP BETWEEN MATERNAL FEEDING STYLES AND NUTRITIONAL STATUS INDICATORS IN FATHER

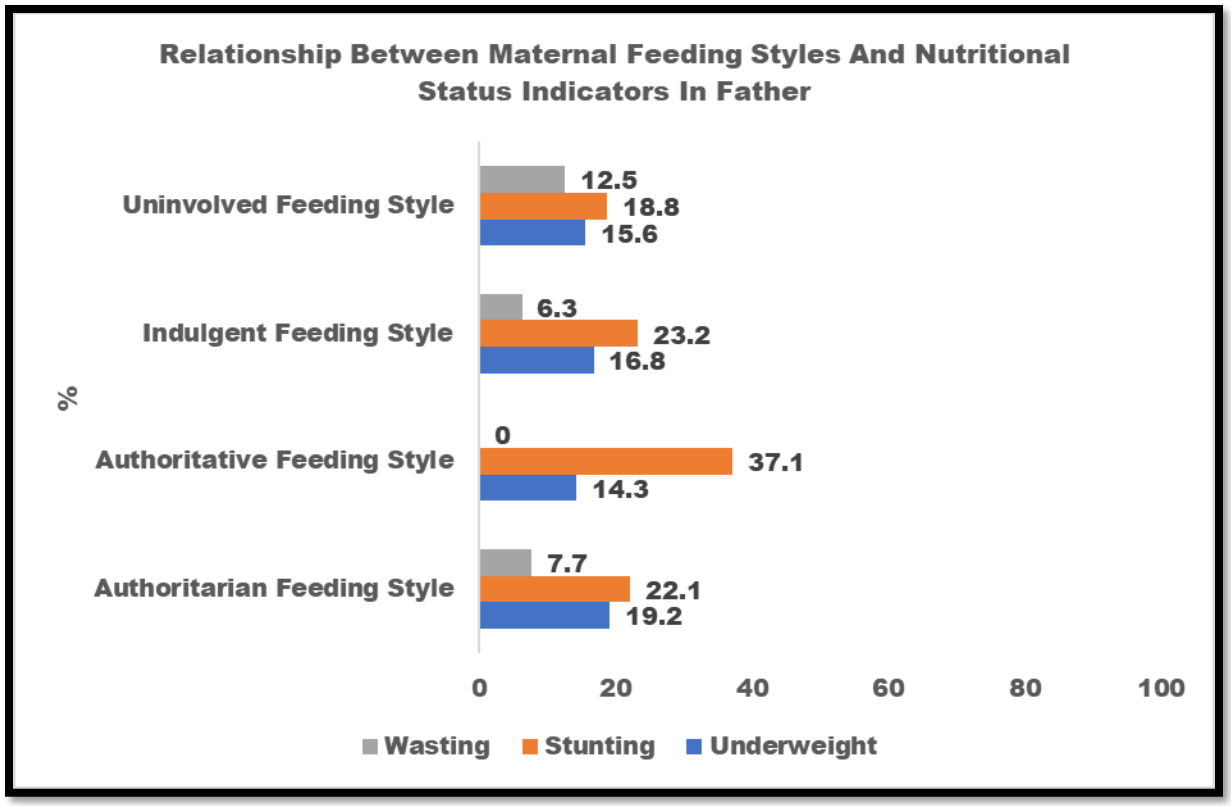


Table 4.56, the relationship between father feeding styles (authoritarian, authoritative, indulgent, and uninvolved) and child nutritional status, categorized as underweight, stunting, and wasting. For underweight, the majority of children across all feeding styles had a normal weight, ranging from 76.9% (authoritarian) to 82.9% (authoritative). The prevalence of underweight varied between 14.3% (authoritative) and 19.2% (authoritarian), while severe underweight was relatively low, with the highest occurrence in the uninvolved group (6.3%). No significant association between father feeding styles and underweight status.

In terms of stunting, the proportion of children with a normal height-for-age ranged from 51.4% (authoritative) to 71.6% (indulgent). Stunting prevalence was highest in the authoritative group (37.1%) and lowest in the uninvolved group (18.8%), while severe stunting varied from 5.3% (indulgent) to 15.6% (uninvolved). No significant association between father feeding styles and stunting.

For wasting, the proportion of children with normal weight-for-height ranged from 76.8% (indulgent) to 88.6% (authoritative). Wasting prevalence was highest in the uninvolved group (12.5%), while the authoritative group had no cases of wasting (0%). The risk of overweight was slightly higher in the indulgent feeding style (12.6%), though severe wasting remained minimal across all groups. No significant association between father feeding styles and wasting.

TABLE 4. 56: RELATIONSHIP BETWEEN MATERNAL FEEDING STYLES AND NUTRITIONAL STATUS INDICATORS IN FATHER

	Father Feeding style								
	Authoritarian Feeding Style		**Authoritative Feeding Style**		**Indulgent Feeding Style**		**Uninvolved Feeding Style**		**Chi-square (P value)**
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Underweight category									
Normal	80	76.9%	29	82.9%	76	80.0%	25	78.1%	1.307 (0.971)
Severe underweight	4	3.8%	1	2.9%	3	3.2%	2	6.3%	

Underweight	20	19.2%	5	14.3%	16	16.8%	5	15.6%	
Stunting Category									
Normal	68	65.4%	18	51.4%	68	71.6%	21	65.6%	8.447 (0.207)
Severe stunting	13	12.5%	4	11.4%	5	5.3%	5	15.6%	
Stunting	23	22.1%	13	37.1%	22	23.2%	6	18.8%	
Wasting category									
Normal	90	86.5%	31	88.6%	73	76.8%	26	81.3%	18.770 (0.224)
Obesity	1	1.0%	1	2.9%	0	0.0%	0	0.0%	
Overweight	1	1.0%	0	0.0%	1	1.1%	0	0.0%	
Possible risk of overweight	2	1.9%	3	8.6%	12	12.6%	2	6.3%	
Severe Wasting	2	1.9%	0	0.0%	3	3.2%	0	0.0%	
Wasting	8	7.7%	0	0.0%	6	6.3%	4	12.5%	

DISCUSSION

It's important to establish the significance of parental feeding styles, particularly during the critical period of early childhood. The way parents feed their children under the age of two has a profound impact on the development of eating behaviors, food preferences, and ultimately, their long-term health outcomes. Understanding these feeding styles can provide valuable insights into factors influencing children's nutrition and weight trajectories in these formative years. The specific results related to parental feeding styles in our study are discussed below.

SOCIO-DEMOGRAPHIC INFLUENCES ON CHILD NUTRITION

This study provides valuable insights into the socio-demographic characteristics, parental education and occupation, and their influence on child feeding practices and dietary quality in a rural Indian population. The religious and caste distributions observed reflect broader demographic trends in India, with Hindus forming the majority, followed by Muslims and Jains. The presence of Scheduled Tribes and the General category in significant numbers highlights the social stratification prevalent in rural communities, which may influence child nutrition through varying levels of access to resources and healthcare.

Parental education plays a crucial role in determining child health and nutritional outcomes. Higher education levels among parents, especially mothers, have been associated with better feeding practices and dietary diversity (Sharma et al., 2023). While a substantial proportion of 40.2% of mothers and 36.1% of fathers had middle school certificates, the presence of illiteracy, particularly among fathers (1.5%) and mothers (3.8%), remains a concern. Maternal education has been positively linked with better child nutrition, as educated mothers are more likely to adopt appropriate complementary feeding practices and provide a diverse diet (Kumar & Singh, 2021). The employment pattern among parents further underscores the gendered division of labour in rural households, with 91.7% of mothers being unemployed and fathers primarily engaged in skilled work or sales-related jobs (49.6%). This economic dependency may impact the mother’s decision-making regarding children's feeding and nutrition.

Handwashing practices varied significantly, with high rates after cooking (98.1%), after feeding (98.5%), and after faeces cleaning (99.6%), but concerningly low rates before cooking (36.5%) and before feeding (34.2%). Additionally, only 39.5% of caregivers used soap or ash, despite 60.5% having access to running water. These findings highlight a need for improved hygiene education to reduce infection risks (Kumar et al., 2022; Patel & Singh, 2021). While food storage practices were generally appropriate, with 46.2% storing cooked food for 2-3 hours, vegetable washing was high (97.7%), but only 1.5% used soap for container cleaning. Water storage methods were mostly safe with clean and covered containers such as earthen pots (83.5%) and metal pots (75.2%) being commonly used. However, only 42.1% treated drinking water, relying primarily on cloth straining (57.9%) and boiling/bleach (29.3%). These findings indicate a critical need to promote effective water treatment methods and proper hygiene practices.

NUTRITIONAL STATUS AND FEEDING PRACTICES

The study revealed that 17.3% of children were underweight, with males (19.4%) showing higher rates than females (15.0%). Severe underweight was also more prevalent among boys (4.3%) than girls (3.1%), consistent with previous findings that suggest male children in tribal communities are more vulnerable to undernutrition due to cultural preferences and resource allocation disparities (Mishra & Singh, 2023). Complementary feeding practices also varied, with 82.0% of children receiving timely introduction after 6 months, but a concerning proportion starting before 6 months (10.5%) or after 6 months (6.4%). The frequency of feeding 58.3% of children and the quantity provided (half a cup for 50.4%) suggest potential inadequacies in meeting nutritional requirements (Kumar & Patel, 2020). The consistency of food, with a preference for medium-thick consistency (59.8%), raises concerns regarding thin consistency feeding for girls (11.8%), which may indicate gender differences in feeding practices.

DIETARY PATTERNS AND FOOD CONSUMPTION

The food frequency questionnaire (FFQ) findings reveal concerning dietary patterns, with high consumption of biscuits, chips, Kurkure, and chocolates (Gupta & Mishra, 2021; Rao et al., 2022). Chocolates and candies were consumed daily by 38% of children, and ultra-processed snacks were frequently eaten. This trend requires dietary interventions to reduce unhealthy processed food intake and encourage healthier eating habits. Despite a strong reliance on cereals (85.6% males, 83.5% females), dietary diversity remained poor, with minimal consumption of flesh foods, eggs, and vitamin A-rich vegetables. 12-24 months children exhibited slightly better dietary diversity, consuming more whole grains, roots, tubers, and dark green leafy vegetables than 6-12 months children. However, only 33.5% of children met the minimum dietary diversity score, and high consumption of unhealthy foods (84.6%) and sweet beverages (85.0%) posed risks for malnutrition and non-communicable diseases (Patel & Verma, 2020; Singh & Gupta, 2021).

PARENTAL FEEDING STYLES AND THEIR IMPACT

The study also explored parental feeding styles, revealing a predominance of indulgent and authoritarian approaches. Mothers were more likely to adopt indulgent feeding styles (37% for females, 33.8% for males), while fathers exhibited authoritarian tendencies (40.3% for males, 37.8% for females). Authoritative feeding, which balances responsiveness and structure, was the least common (Das & Kumar, 2020; Patel & Singh, 2021). These feeding styles significantly influenced children's dietary intake and development. Notably, indulgent feeding among mothers was linked to increased stunting, while father’s indulgence correlated with a higher risk of overweight children. Uninvolved feeding had the most detrimental effects, leading to severe underweight, stunting, and wasting, emphasizing its negative impact on child growth. The findings underscore the importance of promoting authoritative feeding practices, which have been associated with optimal weight and height growth in children (Gupta & Kumar, 2020; Reddy & Patel, 2021).

This study highlights the multifaceted nature of child nutrition in rural India, shaped by socio-demographic factors, parental styles, feeding practices, hygiene, and dietary diversity. The

findings underscore the need for targeted interventions to improve feeding knowledge, enhance hygiene practices, promote dietary diversification, and encourage authoritative feeding styles. Strengthening parental knowledge, addressing gender disparities, and increasing access to nutrition education programs can contribute to better child nutrition outcomes, ultimately reducing the burden of malnutrition and promoting healthier growth and development in rural communities.

SUMMARY AND CONCLUSION

Complementary feeding practices are particularly critical in rural areas of India due to unique challenges such as limited access to diverse foods, inadequate nutritional knowledge, and socio-economic constraints. In rural areas, limited access to nutrient-dense foods such as fruits, vegetables, eggs, and dairy products exacerbates deficiencies in essential micronutrients. Traditional beliefs and practices influence feeding decisions. For instance, mothers may delay introducing complementary foods due to misconceptions about readiness or fear of illness. Maternal education plays a significant role in improving complementary feeding practices. Educated mothers are more likely to introduce diverse and timely foods (Nurrizka et al., 2021; Sağlam et al., 2019)

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 (where parents observe hunger cues and encourage eating is less common in rural areas due to lack of awareness) and demand. Some parents exert pressure on children to eat more, which can lead to negative associations with food or overfeeding (Klerks et al., 2021).

SOCIO-DEMOGRAPHIC INFORMATION

- The findings show that the majority of the people in the survey were Hindu (72.9%), followed by Muslims (22.2%) and Jains (4.9%).
- Almost half of the subjects belonged to the General category (53.4%), followed by Scheduled Tribes (24.8%), Scheduled Castes (1.9%) and Other Backward Classes (19.9%).
- Most of the families were joint families (72.6%), followed by nuclear families (22.2%) and extended families (5.3%).
- The majority of mothers (66.2%) belonged to the 20-30 age group. However, fathers aged 30-40 years formed the largest proportion at 47.7%.
- The majority (76.7%) of households reported no additional income sources. Among those that did have additional sources, agriculture was the most common, contributing to 21.8% of households.

- Based on the Kuppuswamy socio-economic scale, most households fall under the lower middle class (III) (41.0%), followed by the upper lower class (IV) (30.8%).
- The majority of mothers had a middle school certificate (40.2%), and high school certificates were held by 15.4% of mothers. The distribution of the father's educational qualifications showed that the majority had a middle school certificate (36.1%), followed by graduate-level education (22.6%).
- A majority of mothers were unemployed (91.7%). Among the employed mothers, skilled workers and shop/market sales workers made up 4.1% of the total.
- Regarding the occupation of the fathers, the majority were skilled workers and shop or market sales workers (49.6% male and 53.5% female).
- The gender distribution of the study participants in two age groups 6–12 months and 12–24 months of the children between the ages of 6 and 12 months, 40 (31.5%) were female, and 36 (25.9%). There were 103 (74.1%) males and 87 (68.5%) females in the 12–24 month group.
- The age range of 12 to 24 months had a higher proportion of males compared to females.
- Additionally, more than half of the children (55.3%) were first birth order, with a slightly higher proportion among males (56.1%) compared to females (54.3%).

IYCF PRACTICES

- The currently breastfeeding infants was higher among females (70.9%) than males (66.9%). Regarding bottle feeding, 36.2% of females and 38.1% of males were bottle-fed.
- Regarding EIBF, 18.0% of infants were breastfed immediately after birth, while 41.7% received breastfeeding within the first hour.
- 62.0% of females and 59.2% of males were breastfed for 12-24 months.
- 71.4% of infants were exclusively breastfed for the first 6 months.
- 82.0% of complementary foods were introduced on time i.e. after six months.
- The majority (58.3%) received complementary feeding twice a day, feeding three times a day was reported in 30.1% of children, and a smaller percentage of children received complementary feeding four times a day (4.5%) or five times a day (1.5%).

- The quantity of complementary foods consumed by children varied, with the majority (50.4%) receiving half a cup per feeding. This was slightly higher among males (51.1%) compared to females (49.6%).
- Around 34.6% of children consumed 3/4th of a cup, with nearly equal distribution between males (33.1%) and females (36.2%).
- The majority (59.8%) consumed food with a medium consistency, and around 32.7% of children received thick-consistency food.
- While a little over a third of respondents wash their hands before cooking (36.5%) and feeding a child (34.2%), nearly all of them wash their hands after cooking (98.1%) and after feeding a child (98.5%).
- The majority of participants rarely consume infant formula, cornflakes, and instant noodles or Maggie, with over 90% reporting never for these items.
- Biscuits appear to be the most frequently consumed ultra-processed food, with a notable percentage consuming them daily.
- 36.1% of children consumed bhungra thrice a week.

KNOWLEDGE OF PARENTS ON COMPLEMENTARY FEEDING PRACTICES

- A majority of both mothers and fathers believe in initiating complementary feeding after 6 months (59.0% and 54.5%, respectively).
- Liquid or semi-solid foods are favored as the initial consistency for 7-month-old infants (91.0% and 94.4%), with solid foods being less common (4.1% and 2.6%).
- Furthermore, children are frequently fed complementary foods multiple times a day, particularly during lunch (99.6% and 98.9%) and dinner (97.7% and 98.1%).
- The types of complementary foods given to children include breastmilk, cereal, legumes, Vitamin A-rich fruits, dairy and eggs.
- Most mothers reported that they do change their child's nappy (100%) compared to fathers (26.3%).
- Discussions about child nutrition between parents are most commonly held monthly (49.6%) or sometimes (39.1%), with only 6.8% engaging in daily conversations.
- A lower percentage of both mothers (3.8%) and fathers (2.3%) preferred feeding milk to a 3-month-old using a cup rather than a bottle when the mother was unavailable.

- Similarly, only 3.4% of mothers and 2.6% of fathers encouraged a 10-month-old child to eat independently using their bowl and spoon.
- However, nearly all participants, including 99.2% of mothers and 98.1% of fathers, engaged in talking to a 10-month-old during meals, emphasizing the importance of interaction during feeding.
- Additionally, most parents (95.5% of mothers and 97% of fathers) adhered to practices such as preventing a 12-month-old child from touching food or the plate.
- Expressing affection while feeding was universally practised by both groups, with nearly 100% compliance.
- Lastly, spoon-feeding and holding a cup for a 24-month-old child without allowing them to touch the spoon was reported by 99.6% of mothers and 98.9% of fathers.
- The majority of parents (97.4%) reported spending money on food for their children and purchasing food for their children (98.5%).
- Mothers were predominantly responsible for preparing food for the child (98.9%). Fathers (0.4%), grandparents (69.2%), and other family members (30.8%) showed lowered participation.
- Fathers (88.3%) were the most active in advising or reminding mothers about feeding times, followed by grandparents (36.8%) and other family members (35%).
- Mothers played a major role in teaching children to eat independently (97.4%), followed by fathers (86.5%) and grandparents (71.1%).
- Hygiene practices were primarily managed by mothers (87.6%), followed by fathers (54.1%) and grandparents (61.7%). Other family members contributed minimally (30.8.
- Fathers were the most supportive (94%) contributing to helping with other chores to enable mothers to prepare food or feed their children. Grandparents also played a significant role, with 74.4%.
- Emotional and practical support related to child feeding is offered occasionally by 51.9% of mothers and 51.1% of fathers.
- A significant majority of both mothers (94.4%) and fathers (99.2%) have not attended parenting or nutrition education programs influencing their knowledge about feeding practices.

- The majority of both mothers (99.2%) and fathers (100%) reported not facing cultural or societal norms that affect their involvement in their child's nutrition.

DQQ INDICATORS

- Grains, starchy roots, tubers, and plantains were consumed by 87.6% of the total population. Cereals were the most consumed food group among both genders. Cereal consumption was higher among 12-24 months infants compared to 6-12 months.
- Beans, peas, lentils, nuts, and seeds showed a significant, with males reporting higher consumption (92.1%) compared to females (82.7%).
- Dairy products were consumed by 28.2% overall.
- Flesh foods had low consumption rates (2.6%), and eggs were consumed by 10.5%.
- Vitamin-A-rich fruits and vegetables were consumed by 22.2% of participants, while other fruits and vegetables had a high consumption rate of 68%. Females consumed Vitamin-A-rich fruits and vegetables as well as other fruits slightly more than males.
- The consumption of fruits and vegetables categorized by age group revealed any one vegetable consumed more by 12-24 months children as compared to 6-12 months children.
- The total food groups consumed revealed significant gender differences. Of females, 27.6% consume four food groups compared to 25.2% of males. Moreover, males showed higher consumption across five food groups and three food groups compared to females.
- Agewise the total food groups consumed revealed significant differences with more food groups consumed by older children.

DIET DIVERSITY OF CHILDREN 6-24 MONTHS

- The prevalence of MDD was 27.8% overall, with 28.9% in the 12-24 months age group and 25.0% in the 6-12 months age group.
- MMF was present in 29.7% of the total children, with notable differences between the age groups 21.1% in 12-24 months and 51.3% in 6-12 months.
- The prevalence of MAD was 10.5% overall, with the 12-24 months group showing 8.9% and the 6-12 months group showing 14.5%.

IYCF INDICATORS FOR CHILDREN 6-24 MONTHS

- A significant proportion consumed sweet foods (82.3%) overall, while a smaller percentage consumed savory and fried snacks (59.8%) overall.
- 80.8% of children had zero vegetable or fruit consumption.
- Consumption of animal-source foods was observed in 36.1% of the children
- Only 11.7% consumed eggs and/or flesh foods.
- In terms of sweet food consumption, baked or grain-based sweets were consumed by 74%.
- Other sweets were consumed by 44.4% of children.
- Packaged ultra-processed salty snacks were consumed by 37.6% of them.
- Higher NCD protection scores in children aged 6-12 months and NCD Risk scores higher in older age groups.

FEEDING PRACTICES AND STRUCTURED QUESTIONNAIRE

- The findings indicate variations in mean scores and standard deviations for different feeding methods such as feeding on demand, parent-led feeding, persuasive feeding, using food to calm, and using non-food rewards.
- In the context of mother's milk feeding, feeding on demand exhibited the highest mean score among females (4.13) compared to males (1.23), indicating that female infants were fed more frequently on demand than males.
- Parent-led feeding and persuasive feeding have relatively similar means across genders, suggesting that these feeding strategies were used consistently irrespective of the gender of the child.
- However, using food to calm showed slightly lower mean values for both groups.
- Similarly, in the semi-solids feeding version, the family meal environment had high mean scores in females (3.65) and males (3.06), reflecting the importance of structured meal settings in infant feeding behaviors.
- Parent-led feeding and persuasive feeding also showed comparable means, while using non-food rewards had the lowest mean score.
- For father's milk feeding, feeding on demand was observed to be relatively balanced between genders, with mean scores of females (2.97) and males (3.00).

- Parent-led feeding and persuasive feeding followed a similar trend, but using food to calm was notably lower, highlighting that this strategy was less frequently used by fathers.
- In the semi-solids feeding version, feeding on demand remained stable across both genders with a mean of approximately 3.73.
- Furthermore, in the family meal environment, both male and female infants showed high mean scores of 3.53 and 3.59, respectively.
- Parent-led feeding and persuasive feeding scores were consistent while using non-food rewards was minimally employed.
- When mothers used milk feeding, Feeding on Demand was most prevalent, with a mean of 4.08, while using Food to Calm was the least, with a mean of 1.8. In fathers' milk feeding, Feeding on Demand showed a mean of 3.00, while Using Food to Calm was the least, with a mean of 1.12.
- For semi-solid feeding by mothers, Feeding on Demand had a mean of 4.06, whereas Using Non-Food Rewards was employed the least at 1.07. For semi-solid feeding by fathers, Feeding on Demand was most reported at a mean of 3.73, while Using Non-Food Rewards was the least, at 1.02.
- Mothers exhibited slightly higher demandingness scores for male children with a mean of 2.40 compared to female children with a mean of 2.35. Similarly, fathers showed higher demandingness for male children with a mean of 1.96 than for female children with a mean of 1.91.
- Responsiveness scores were higher for female children across both parents.
- Overall, the total mean suggests that mothers are slightly more demanding with a mean of 2.37 and responsive with a mean of 1.18 than fathers Demandingness with a mean of 1.94 and Responsiveness with a mean of 1.70.
- Mother demandingness, the mean was slightly higher in the 12-24 months children which is 2.39 compared to the 6-12 months children which is 2.34, with an overall mean of 2.37.
- Mother responsiveness showed a different pattern, with a higher mean in the 6-12 months children which is 1.29 compared to the 12-24 months children which is 1.13, and an overall mean of 1.18.

- Father demandingness also presented a similar trend, with a mean of 1.98 in the 12-24 months children and 1.82 in the 6-12 months children the total mean for father demandingness was 1.94.
- Also, father responsiveness had a mean of 1.63 in the 12-24 months children and a higher mean of 1.88 in the 6-12 months children, a total mean of 1.70.
- For mother demandingness, 45.1% were categorized as high demandingness and for responsiveness, 49.6% were high responsiveness.
- Father demandingness indicated that 52.3% were high demandingness, while father responsiveness showed that 48.9% were high responsiveness.
- The most prevalent feeding style was the indulgent feeding style among mothers. The authoritarian feeding style was the second most common.
- For fathers, authoritarian feeding style was most frequent followed by Indulgent feeding style. These findings suggest a potential influence of parental feeding approaches on child development.
- Parental responsiveness was higher in females than in males.

PREVALENCE OF MALNUTRITION AMONG CHILDREN 6-24 MONTHS

- Stunting was prevalent in 24.1% of children, with a higher proportion among males (27.3%) compared to females (20.5%).
- Severe stunting was observed in 10.2% of children, affecting 8.7% of females and 11.5% of males.
- Moderate wasting was observed in 6.8% of children, while Severe wasting was observed in 1.9%.
- Additionally, 7.1% of children were identified as being at possible risk of overweight, with a higher prevalence among males (8.6%) compared to females (5.5%).
- Obesity was detected in only 0.8% of the population, affecting two male children.
- In terms of Underweight (low weight-for-age) prevalence of underweight was 17.3%, with 19.4% of males and 15.0% of females falling under this category.
- Severe underweight was recorded in 3.8% of children, affecting 3.1% of females and 4.3% of males.

- The prevalence of underweight varied between 14.6% (authoritarian) and 21.2% (uninvolved), while severe underweight was highest among children with uninvolved mothers (7.7%).
- The highest prevalence of stunting was observed in the indulgent group (34.0%), while severe stunting was most frequent in the uninvolved group (21.2%).
- Wasting prevalence varied from 4.9% (authoritarian) to 11.5% (uninvolved), with obesity and overweight remaining low across all groups but slightly elevated among children with uninvolved mothers.
- The prevalence of underweight varied between 14.3% (authoritative) and 19.2% (authoritarian), while severe underweight was relatively low, with the highest occurrence in the uninvolved group (6.3%).
- Stunting prevalence was highest in the authoritative group (37.1%) and lowest in the uninvolved group (18.8%), while severe stunting varied from 5.3% (indulgent) to 15.6% (uninvolved).
- Wasting prevalence was highest in the uninvolved group (12.5%), while the authoritative group had no cases of wasting (0%).
- The risk of overweight was slightly higher in the indulgent feeding style (12.6%), though severe wasting remained minimal across all groups.

CONCLUSION

This study provides a comprehensive overview of the socio-demographic, nutritional, and feeding practices of children aged 6-24 months. The data reveals a complex interplay of factors influencing child health, including socio-economic status, parental education and occupation, feeding practices, and consumption of ultra-processed foods. Notably, while basic hygiene practices and water storage are generally adequate, there are significant gaps in optimal complementary feeding, dietary diversity, and the consumption of unhealthy foods. These findings underscore the need for targeted interventions to improve parental knowledge and practices regarding child nutrition, particularly focusing on promoting diverse and nutritious diets, minimizing ultra-processed food intake, and enhancing hygiene practices during food preparation and feeding.

The study also highlights gender and age-related disparities in nutritional status and feeding practices. Males tend to exhibit higher rates of malnutrition, particularly stunting and underweight, and demonstrate different consumption patterns of food groups compared to females. Furthermore, 12-24 months show increased consumption of certain food groups, indicating evolving dietary needs with age. Parental involvement in feeding practices, primarily driven by mothers, underscores the importance of empowering mothers with nutritional knowledge and support.

This study reveals critical insights into dietary habits and parental feeding practices influencing the nutritional status of young children. Notably, the consumption of diverse food groups, a key indicator of nutritional adequacy, varies significantly by age and gender, with a concerning prevalence of inadequate food group intake, particularly among males and younger infants. Parental feeding styles, categorized as authoritarian, authoritative, indulgent, and uninvolved, exhibit distinct patterns across mothers and fathers and correlate with child nutritional outcomes. Indulgent and uninvolved feeding styles appear to be associated with higher risks of stunting, wasting, and underweight, highlighting the importance of structured and responsive feeding approaches.

Furthermore, the study underscores gender-specific differences in parental demandingness and responsiveness, with mothers exhibiting higher overall demandingness and responsiveness than fathers. The prevalence of authoritarian and indulgent feeding styles, coupled with variations in demandingness and responsiveness, suggests a complex interplay between parental behavior and child nutritional health. These findings emphasize the need for targeted interventions to promote healthier feeding practices and address gender-specific parental behaviors to improve child nutritional outcomes and mitigate the risk of non-communicable diseases (NCDs).

REFERENCES

A Study to Assess the Knowledge, Implementation of Practices Regarding Complementary Feeding among the mothers of Infants in Selected Rural Areas of Vadodara | NATURALISTA CAMPANO. (n.d.). Retrieved March 17, 2025, from https://museonaturalistico.it/index.php/journal/article/view/530

Abera, M., Abdulahi, M., & Wakayo, T. (2017). Fathers' Involvement in Breast Feeding Practices and Associated Factors among Households having Children Less than Six Months in Southern Ethiopia: A Cross-Sectional Study. Pediatrics & Therapeutics, 07(01). https://doi.org/10.4172/2161-0665.1000306

Abi Khalil, H., Hawi, M., & Hoteit, M. (2022). Feeding Patterns, Mother-Child Dietary Diversity and Prevalence of Malnutrition Among Under-Five Children in Lebanon: A Cross-Sectional Study Based on Retrospective Recall. Frontiers in Nutrition, 9. https://doi.org/10.3389/FNUT.2022.815000

Agostoni, C., Braegger, C., Decsi, T., Kolacek, S., Koletzko, B., Michaelsen, K. F., Mihatsch, W., Moreno, L. A., Puntis, J., Shamir, R., Szajewska, H., Turck, D., & Van Goudoever, J. (2009). Breast-feeding: A commentary by the espghan Committee on Nutrition. Journal of Pediatric Gastroenterology and Nutrition, 49(1), 112–125. https://doi.org/10.1097/MPG.0B013E31819F1E05

Ahmad, A., Madanijah, S., Dwiriani, C. M., & Kolopaking, R. (2018). Complementary feeding practices and nutritional status of children 6–23 months old: formative study in Aceh, Indonesia. Nutrition Research and Practice, 12(6), 512. https://doi.org/10.4162/NRP.2018.12.6.512

Al Sabbah, H., Assaf, E. A., Al-Jawaldeh, A., AlSammach, A. S., Madi, H., Khamis Al Ali, N., Al Dhaheri, A. S., & Cheikh Ismail, L. (2023). Khamis Al Ali N, Al Dhaheri AS, Cheikh Ismail L: Nutrition Situation Analysis in the UAE: a review study. Nutrients, 15(2), 363. https://doi.org/10.3390/nu15020363

Allotey, D., Flax, V. L., Ipadeola, A. F., Kwasu, S., Adair, L. S., Valle, C. G., Bose, S., & Martin, S. L. (2022). Fathers' Complementary Feeding Support Strengthens the Association Between Mothers' Decision-Making Autonomy and Optimal Complementary Feeding in Nigeria. Current Developments in Nutrition, 6(7), nzac098. https://doi.org/10.1093/CDN/NZAC098

Anang, C. N. F. (2023). Fathers' Knowledge, Attitudes And Practices Concerning Young Child Feeding And Nutritional Status Of Children 0-24 Months In The La Nkwantanang Municipal District. http://ugspace.ug.edu.gh:8080/handle/123456789/40809

Andersen, C. T., Chopra, P. K., Dave, N., Hariprasad, D., Kak, M., Pandey, R., Tanwar, D., & Chaudhery, D. N. (2024). Maternal and child nutrition services associated with nutritional

knowledge and practices, India. Bulletin of the World Health Organization, 102(1), 9–21. https://doi.org/10.2471/BLT.22.289129

Anderson, K. E., Nicklas, J. C., Spence, M., & Kavanagh, K. (2010). Roles, perceptions and control of infant feeding among low-income fathers. Public Health Nutrition, 13(4), 522–530. https://doi.org/10.1017/S1368980009991972

Ararsa, G. G., Getachew, M. T., Diddana, T. Z., & Alemayehu, F. R. (2023). Prevalence of undernutrition and associated factors among children aged 6-23 months: A cross-sectional analysis from South-East Ethiopia. Journal of Nutritional Science, 12. https://doi.org/10.1017/jns.2023.109

Assessing progress on the coverage of interventions in the first 1000 days in India: role of national programs - PMC. (n.d.). Retrieved March 17, 2025, from https://pmc.ncbi.nlm.nih.gov/articles/PMC11667467/

Assessment of breast-feeding and weaning practices of under-fives and their associated co-morbidities in urban and rural areas of Ahmedabad City, Gujarat, India - PMC. (n.d.). Retrieved March 17, 2025, from https://pmc.ncbi.nlm.nih.gov/articles/PMC11006042/

Assessment of infant and young child feeding practices with special emphasis on IYCF indicators in a field practice area of Rural Health Training Centre at Dabhoda, Gujarat, India | International Journal of Medical Science and Public Health. (n.d.). Retrieved March 17, 2025, from https://www.bibliomed.org/?mno=183776

Bansal, S. C., Odedra, R., Talati, K., Morgaonkar, V. A., Shinde, M., & Nimbalkar, S. M. (2021). Infant and young child feeding (IYCF) practices and their determinants in two Urban districts of India. *Journal of Family Medicine and Primary Care*, *10*(8), 3137. https://doi.org/10.4103/JFMPC.JFMPC_184_21

Bassul, C., Corish, C. A., & Kearney, J. M. (2020). Associations between the home environment, feeding practices and children's intakes of fruit, vegetables and confectionary/sugar-sweetened beverages. *Int J Environ Res Public Health*, *17*(13), 4837. https://doi.org/10.3390/ijerph17134837

Begley, A., Ringrose, K., Giglia, R., & Scott, J. (2019). Mothers' understanding of infant feeding guidelines and their associated practices: A qualitative analysis. *International Journal of Environmental Research and Public Health*, *16*(7). https://doi.org/10.3390/IJERPH16071141

Belew, A. K., Ali, B. M., Abebe, Z., & Dachew, B. A. (2017). Dietary diversity and meal frequency among infant and young children: A community based study. *Italian Journal of Pediatrics*, *43*(1). https://doi.org/10.1186/S13052-017-0384-6

Bhatia, S., Singh, R., & Verma, A. (2018). Parental feeding practices and child nutritional status in rural Gujarat. Journal of Rural Health, 34(2), 187-195.

Black, R. E., Victora, C. G., & Walker, S. P. (2022). Undernutrition and child development: long-term consequences. The Lancet Child & Adolescent Health, 6(1), 60-70.

Black, R. E., Victora, C. G., Walker, S. P., Bhutta, Z. A., Christian, P., de Onis, M., ... & Uauy, R. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. The Lancet, 382(9890), 427-451.

Chandwani, H., Prajapati, A., Rana, B., & Sonaliya, K. (2015a). Assessment of infant and young child feeding practices with special emphasis on IYCF indicators in a field practice area of Rural Health Training Centre at Dabhoda, Gujarat, India. International Journal of Medical Science and Public Health, 4(10), 1414–1414. https://doi.org/10.5455/IJMSPH.2015.07042015290

Chaudhary, A., & Singh, R. (2020). Breastfeeding Practices and Infant Health in Rural India. Maternal & Child Nutrition, 16(2), e12930.

Cheikh Ismail, L., Al Dhaheri, A. S., Ibrahim, S., Ali, H. I., Chokor, F. A. Z., O'Neill, L. M., Mohamad, M. N., Kassis, A., Ayesh, W., Kharroubi, S., & Hwalla, N. (2022). Nutritional status and adequacy of feeding practices in infants and toddlers 0-23.9 months living in the United Arab Emirates (UAE): findings from the feeding infants and toddlers study (FITS) 2020. BMC Public Health, 22(1), 319. https://doi.org/10.1186/s12889-022-12616-z

Chopra, H., Paul, B., Virk, A., Pandey, G., & Lahariya, C. (2023). Triple Burden of Malnutrition among Children in India: Current Scenario and the Way Forward. Indian Journal of Pediatrics, 90, 95–103. https://doi.org/10.1007/S12098-023-04739-X

Choudhury, S., Headey, D. D., & Masters, W. A. (2019). First foods: Diet quality among infants aged 6–23 months in 42 countries. Food Policy, 88. https://doi.org/10.1016/J.FOODPOL.2019.101762

Das, S., & Patel, A. (2020). Maternal Practices in Complementary Feeding and Hygiene in Rural India. Journal of Community Health, 45(6), 1100-1108.

Desai, M., & Patel, K. (2020). Cultural influences on infant and young child feeding practices in rural Gujarat. Indian Journal of Community Health, 32(4), 567-574.

Dewey, K. G., & Adu-Afarwuah, S. (2008). Systematic review of the efficacy and effectiveness of complementary feeding interventions in developing countries. Maternal & Child Nutrition, 4(Suppl. 1), 24-85.

Dewey, K. G., Adu-Afarwuah, S., & Arimond, M. (2019). Complementary feeding: current status and recommendations for improvement. Advances in Nutrition, 10(Suppl_4), S394-S405.

Dhami, M. V., Ogbo, F. A., Diallo, T. M. O., Olusanya, B. O., Goson, P. C., & Agho, K. E. (2021). Infant and young child feeding practices among adolescent mothers and associated factors in India. Nutrients, 13(7), 2376. https://doi.org/10.3390/NU13072376/S1

Diets - UNICEF DATA. Retrieved March 12, 2025, from https://data.unicef.org/topic/nutrition/diets/

Ganesan, S., Jayaraj, J., Geminiganesan, S., & Rajan, M. (2021). A study on parental awareness of feeding practices in children in the age-group 12-24 months. Journal of Preventive Medicine and Hygiene, 62(4), E909–E917. https://doi.org/10.15167/2421-4248/JPMH2021.62.4.2287

Georgieff, M. K. (2011). Iron deficiency in pregnancy. American Journal of Obstetrics and Gynecology, 204(3), 183-190.

Georgieff, M. K. (2021). Iron deficiency in the first 1000 days of life: adverse neurodevelopment and psychopathology. Brain Sciences, 11(10), 1269.

Global health index. 2022. Https://www.globalhungerindex.org/ranking.html

Global Nutrition Report | Country Nutrition Profiles - Global Nutrition Report. Retrieved September 27, 2024, from https://globalnutritionreport.org/resources/nutrition-profiles/asia/southern-asia/india/

Gluckman, P. D., Hanson, M. A., & Pinal, C. (2008). Perinatal programming: the critical role of maternal nutrition. Journal of Developmental Origins of Health and Disease, 1(1), 17-23.

Gosvami, A., Singh, S., & Head, R. &. (2008). A STUDY OF THE EFFECT OF FEEDING PRACTICES ON CHILD DEVELOPMENT (CHILDREN AGED 0-2 Yrs).

Govender, I., Rangiah, S., Kaswa, R., & Nzaumvila, D. (2021). Malnutrition in children under the age of 5 years in a primary health care setting. South African Family Practice, 63(1), 5337. https://doi.org/10.4102/SAFP.V63I1.5337

Grantham-McGregor, S., Cheung, Y. B., Cueto, S., Glewwe, P., Richter, L., Strupp, B., & International Child Development Steering Group. (2007). Developmental potential in the first 5 years for children in developing countries. The Lancet, 369(9555), 60-70.

Gupta, K, S. CHILD MALNUTRITION IN UTTAR PRADESH: INTER DISTRICT ANALYSIS. 2019. IJRAR. Volume 6. Issue 2. 2349-5138

Gupta, S., & Mishra, R. (2021). Consumption of Ultra-Processed Foods Among Children in Rural India. Journal of Pediatric Nutrition, 15(3), 250-258.

Hawkes, C., Ruel, M. T., Salm, L., Sinclair, B., & Branca, F. (2020). Double-duty actions: seizing programme and policy opportunities to address malnutrition in all its forms. Lancet, 395(10218), 142–155. https://doi.org/10.1016/s0140-6736(19)32506-1

Hennessy, E., Hughes, S. O., Goldberg, J. P., Hyatt, R. R., & Economos, C. D. (2012). Permissive parental feeding behavior is associated with an increase in intake of low-nutrient-dense foods among American children living in rural communities. Journal of the Academy of Nutrition and Dietetics, 112(1), 142–148. https://doi.org/10.1016/J.JADA.2011.08.030

Iyer, A., Kent, K., Brunacci, K., Agho, K. E., & Fleming, C. A. K. (2024). Feeding Practices, Parent Perceptions, and Diet Diversity in a Sample of Children Aged 0–5 Years from Western Sydney, Australia: A Mixed Methods Study. Nutrients 2024, Vol. 16, Page 198, 16(2), 198. https://doi.org/10.3390/NU16020198

Jansen, E., Williams, K. E., Mallan, K. M., Nicholson, J. M., & Daniels, L. A. (2016). The Feeding Practices and Structure Questionnaire (FPSQ-28): A parsimonious version validated for longitudinal use from 2 to 5 years. Appetite, 100, 172–180. https://doi.org/10.1016/J.APPET.2016.02.031

Javalkar, S. R. (2019). Assessing WHO's IYCF indicators in mangalore taluk- a cross sectional study. Indian Journal of Public Health Research and Development, 10(6), 76–80. https://doi.org/10.5958/0976-5506.2019.01242.7

Jeyakumar, A., Babar, P., Menon, P., Nair, R., Jungari, S., Medhekar, A., Prakshale, B., Shaikh, J., Chacko, M., Nikam, M., More, P., Nayel, S., Simelane, S., & Awale, S. (2023). Determinants of complementary feeding practices among children aged 6–24 months in urban slums of Pune, Maharashtra, in India. Journal of Health, Population, and Nutrition, 42(1). https://doi.org/10.1186/S41043-022-00342-6

Johns Hopkins Medicine. Malnutrition. Https://www.hopkinsmedicine.org/health/conditions-anddiseases/malnutrition

Kasparian, M., Mann, G., Serrano, E. L., & Farris, A. R. (2017). Parenting practices toward food and children's behavior: Eating away from home versus at home. Appetite, 114, 194–199. https://doi.org/10.1016/j.appet.2017.03.045

Kavanagh, K. F., Habibi, M., Anderson, K., & Spence, M. (2010). Caregiver- vs Infant-Oriented Feeding: A Model of Infant-Feeding Strategies among Special Supplemental Nutrition Program for Women, Infants, and Children Participants in Rural East Tennessee. Journal of the American Dietetic Association, 110(10), 1485–1491. https://doi.org/10.1016/J.JADA.2010.07.009

Kay, A., Leidman, E., Lopez, V., Wilkinson, C., Tondeur, M., & Bilukha, O. (2019). The burden of anaemia among displaced women and children in refugee settings worldwide, 2013-2016. BMJ Glob Health, 4(6). https://doi.org/10.1136/bmjgh-2019-001837

Keats, E. C., Das, J. K., Salam, R. A., Lassi, Z. S., Imdad, A., Black, R. E., & Bhutta, Z. A. (2021). Effective interventions to address maternal and child malnutrition: an update of the

evidence. The Lancet Child and Adolescent Health, 5(5), 367–384. https://doi.org/10.1016/S2352-4642(20)30274-1

Khamis, A. G., Mwanri, A. W., Ntwenya, J. E., & Kreppel, K. (2019). The influence of dietary diversity on the nutritional status of children between 6 and 23 months of age in Tanzania. BMC Pediatrics, 19(1). https://doi.org/10.1186/s12887-019-1897-5

Khan, A. M., Kayina, P., Agrawal, P., Gupta, A., & Kannan, A. T. (2012). A study on infant and young child feeding practices among mothers attending an urban health center in East Delhi. Indian Journal of Public Health, 56(4), 301–304. https://doi.org/10.4103/0019-557X.106420

Khan, N., Mozumdar, A., & Kaur, S. (2019). Dietary Adequacy Among Young Children in India: Improvement or Stagnation? An Investigation From the National Family Health Survey. Food and Nutrition Bulletin, 40(4), 471–487. https://doi.org/10.1177/0379572119859212

Khandelwal, S., Kondal, D., Chakravarti, A. R., Dutta, S., Banerjee, B., Chaudhry, M., Patil, K., Swamy, M. K., Ramakrishnan, U., Prabhakaran, D., Tandon, N., & Stein, A. D. (2022). Infant Young Child Feeding Practices in an Indian Maternal–Child Birth Cohort in Belagavi, Karnataka. International Journal of Environmental Research and Public Health, 19(9), 5088. https://doi.org/10.3390/IJERPH19095088/S1

Khandelwal, S., Swamy, M. K., Patil, K., Kondal, D., Chaudhry, M., Gupta, R., Divan, G., Kamate, M., Ramakrishnan, L., Bellad, M. B., Gan, A., Kodkany, B. S., Martorell, R., Srinath Reddy, K., Prabhakaran, D., Ramakrishnan, U., Tandon, N., & Stein, A. D. (2018). The impact of DocosaHexaenoic Acid supplementation during pregnancy and lactation on Neurodevelopment of the offspring in India (DHANI): Trial protocol. BMC Pediatrics, 18(1). https://doi.org/10.1186/S12887-018-1225-5

Kim-Herrera, E. Y., Ramírez-Silva, I., Rodríguez-Oliveros, G., Ortiz-Panozo, E., Sánchez-Estrada, M., Rivera-Pasquel, M., Pérez-Escamilla, R., & Rivera-Dommarco, J. A. (2021). Parental Feeding Styles and Their Association With Complementary Feeding Practices and Growth in Mexican Children. Frontiers in Pediatrics, 9. https://doi.org/10.3389/FPED.2021.786397/FULL

Knudsen, E. I., Heckman, J. J., Cameron, J. L., & Shonkoff, J. P. (2020). Economic, neurobiological, and behavioral perspectives on building America's future workforce. Proceedings of the National Academy of 1 Sciences, 117(23), 12755-12762.

Kumar, A., & Reddy, S. (2022). Parental Roles in Child Feeding and Support in Rural India. Journal of Family Studies, 28(2), 200-210.

Lavania, D. Times of India. Over 5,000 highly malnourished children were identified in Agra district. 2021 Sahu, S, K. Kumar, S, K. Bhat, B, V. Premarajan, K,C. Sarkar, S. Roy, G. Joseph, N. Malnutrition among under-five children in India and strategies for control. 2015. 25810629

Lindsay, A. C., Machado, M. T., Sussner, K. M., Hardwick, C. K., & Peterson, K. E. (2008). Infant-feeding practices and beliefs about complementary feeding among low-income Brazilian mothers: A qualitative study. Food and Nutrition Bulletin, 29(1), 15–24. https://doi.org/10.1177/156482650802900102

Lolan, Y. P., Somantri, U. W., De, Y., & Sinaga, Y. (n.d.). INTERNATIONAL JOURNAL OF HEALTH & MEDICAL RESEARCH Father's Involvement in Providing Complementary Foods to Toddlers 6-24 Months in An Effort to Reduce Stunting in Bandung City-Indonesia. https://doi.org/10.58806/ijhmr.2023.v2i12n04

Lupien, S. J., McEwen, B. S., Gunnar, M. R., & Heim, C. (2020). Effects of stress throughout the lifespan on the brain, behaviour and cognition. Nature Reviews Neuroscience, 21(12), 651-668.

Malnutrition-free India. 2021. PIB Delhi

Mandal, I., & Hossain, S. R. (2024). Update of modified Kuppuswamy scale for the year 2024. International Journal of Community Medicine and Public Health, 11(7), 2945–2946. https://doi.org/10.18203/2394-6040.ijcmph20241863

Martorell R. (2017). Improved nutrition in the first 1000 days and adult human capital and health. American journal of human biology: the official journal of the Human Biology Council, 29(2), 10.1002/ajhb.22952. https://doi.org/10.1002/ajhb.22952

Mehta, P., Joshi, L., & Trivedi, N. (2021). Maternal workload and child feeding practices in agricultural communities of Gujarat. Journal of Tropical Pediatrics, 67(3), 210-218.

Meléndez-Martínez, A. J. (2019). An overview of carotenoids, apocarotenoids, and vitamin A in agro-food, nutrition, health, and disease. Mol Nutr Food Res, 63(15), 1801045. https://doi.org/10.1002/mnfr.201801045

Mensch, B. S., Chuang, E. K., Melnikas, A. J., & Psaki, S. R. (2019). Evidence for causal links between education and maternal and child health: systematic review. Trop Med Int Health, 24(5), 504–522. https://doi.org/10.1111/tmi.13218

Mertens, A., Benjamin-Chung, J., Colford, J. M., Coyle, J., van der Laan, M. J., Hubbard, A. E., Rosete, S., Malenica, I., Hejazi, N., Sofrygin, O., Cai, W., Li, H., Nguyen, A., Pokpongkiat, N. N., Djajadi, S., Seth, A., Jung, E., Chung, E. O., Jilek, W., … Yori, P. P. (2023). Causes and consequences of child growth faltering in low-resource settings. Nature, 621(7979), 568–576. https://doi.org/10.1038/s41586-023-06501-x

Moore, T., Arefadib, N., Deery, A., & West, S. (2021). Ensuring healthy development and nutrition in the first 1000 days of life: a review. Health Promotion International, 36(6), 1686-1703.

Murarkar, S. Gothankar, J. Doke, P. Pore, P. Lalwani, S. Dhumale, G. Quraishi, S. Patil, R. Waghachavare, V. Dhobale, R. Rasote, K. Palkar, S. Malshe, N. BMC public health. Prevalence and determinants of undernutrition among under-five children residing in urban slums and rural area, Maharashtra, India: a community-based cross-sectional study. 2020. Article number: 1559 (2020).

Naja, F., Hwalla, N., Chokor, F. A. Z., Zgheib, R., & Nasreddine, L. (2023). Infant and young child feeding practices in Lebanon: a cross-sectional national study. *Public Health Nutr*, *26*(1), 143–159. https://doi.org/10.1017/s1368980022000842

Narayana, G. Thasmiya, D, R. Chowdary, P, P. Veerabhadrappa, K, P. Milka, M. Usharani, K. Reetha, M. Prevalence and Risk Factors for Malnutrition among Rural School Children in Anantapur District, Andhra Pradesh, India. 2021. Vol 13 • Issue 22

One Day Sensitization Module 1 Ministry of Health and Family Welfare Government of India One Day Sensitization Module INFANT AND YOUNG CHILD FEEDING. (2016).

Owais, A., Schwartz, B., Kleinbaum, D. G., Suchdev, P. S., Faruque, A. S. G., Das, S. K., & Stein, A. D. (2016). Minimum acceptable diet at 9 months but not exclusive breastfeeding at 3 months or timely complementary feeding initiation is predictive of infant growth in rural Bangladesh. PLoS ONE, 11(10). https://doi.org/10.1371/JOURNAL.PONE.0165128

Owen, C. G., Whincup, P. H., Cook, D. G., Victor, C. R., dos Santos, S. N., & Wadsworth, M. E. (2019). Breastfeeding and adult cardiovascular disease risk: findings from the British 1946 birth cohort study. European Heart Journal, 40(10), 837-843.

Parada, H., Ayala, G. X., Horton, L. A., Ibarra, L., & Arredondo, E. M. (2016). Latino fathers' feeding-related parenting strategies on children's eating. *Ecology of Food and Nutrition*, *55*(3), 292–307. https://doi.org/10.1080/03670244.2016.1161616

Patel, K., Gupta, L., & Sharma, M. (2021). Early Initiation and Exclusive Breastfeeding in Rural Indian Communities. Journal of Human Lactation, 37(1), 100-108.

Patel, R., & Shah, D. (2022). Effectiveness of community-based nutrition interventions in rural Gujarat. Nutrition Research and Practice, 16(1), 45-53.

Patel, R., Kumar, A., & Sharma, V. (2022). Maternal education and child nutritional status in rural India: A cross-sectional study. Journal of Rural Health, 38(4), 567-578.

Patil.P, Thamke.R, Pareek.P, Ballamudi.K, New Indian Journal of Pediatrics. Assessment Of 24-Hour Dietary Recall In Under Five Children With Moderate Acute Malnutrition. 2019. 8.4: 171-177

Pradesh, U., Vandana, I., Jain, N., Singh, C., & Jain, M. (2022). Malnutrition and associated factors among rural children between 1 to 3 years of age residing in Saharanpur district, Uttar

Pradesh, India. Journal of Positive School Psychology, 2022(5), 5671-5684–5671–5684. https://journalppw.com/index.php/jpsp/article/view/7699

Rao, M., Patel, A., & Sharma, V. (2022). Dietary Patterns and Ultra-Processed Food Intake in Young Children: A Rural Indian Perspective. Food and Nutrition Research, 66, 12345.

Rollins, N. C., Bhandari, N., Hajeebhoy, N., Horton, S., Lutter, C. K., Martines, J. C., ... & Victora, C. G. (2016). Why invest, and what it will take to improve breastfeeding practices?. The Lancet, 387(10017), 491-504.

Saha, S. Singh, R. Child malnutrition in India: A systemic failure. 2021. Downtoearth.org.in

Saha, S., Pandya, A., Raval, D., & Patil, M. S. (2022). Nutritional Status of Children Under Two Years of Age in the Devbhumi Dwarka District, Gujarat: A Descriptive Cross-Sectional Study. *Cureus*, *14*(7). https://doi.org/10.7759/CUREUS.27445

Scott, J.A. (2020), The first 1000 days: A critical period of nutritional opportunity and vulnerability. Nutrition & Dietetics, 77: 295-297. https://doi.org/10.1111/1747-0080.12617

Sharma, V., & Kumar, S. (2019). Socioeconomic determinants of child malnutrition in rural Gujarat. Economic and Political Weekly, 54(12), 39-46.

Shinsugi, C. Gunasekara, D. Takimoto, H. Use of Mid-Upper Arm Circumference (MUAC) to Predict Malnutrition among Sri Lankan Schoolchildren. 2020. 10.3390/nu12010168

Singh, A. National library of medicine. Childhood Malnutrition in India. 2020

Singh, P., Saraswat, S., & Singh, S. (n.d.). Prevalence of Malnutrition Among Rural Children Under 5 Years in Rural Area of Agra District. Retrieved March 18, 2025, from www.ijfmr.com

Singh, R., Verma, A., & Gupta, K. (2020). Impact of early motherhood on child nutritional outcomes in rural India. Maternal & Child Nutrition, 16(4), e13002.

Spyreli, E., McKinley, M. C., & Dean, M. (2021). Parental considerations during complementary feeding in higher income countries: a systematic review of qualitative evidence. Public Health Nutrition, 24(10), 2834. https://doi.org/10.1017/S1368980021001749

Thullen, M., Majee, W., & Davis, A. N. (2016). Co-parenting and feeding in early childhood: Reflections of parent dyads on how they manage the developmental stages of feeding over the first three years. Appetite, 105, 334–343. https://doi.org/10.1016/J.APPET.2016.05.039

Times of India. Over 9 lakh kids, most from UP, are acutely malnourished. 2021. Https://timesofindia.indiatimes.com/india/over-9-lakh-kids-most-from-up-acutelymalnourished/articleshow/84874886.cms

Understanding the malnutrition crisis in India. 2022. Feeding India. Https://www.feedingindia.org/blog/understandingthe-malnutrition-crisis-in-india

UNICEF Conceptual Framework | UNICEF. (n.d.). Retrieved March 21, 2025, from https://www.unicef.org/documents/conceptual-framework-nutrition

Vandana. Jain, N. Singh, C. Jain, M. Journal of Positive School Psychology. Malnutrition and associated factors among rural children between 1 to 3 years of age residing in Saharanpur district, Uttar Pradesh, India. 2022. Vol. 6. No. 5. 5671–5684.

Verma, A., Singh, R., & Kumar, S. (2021). Food Preparation and Feeding Practices in Rural India: Implications for Child Nutrition. Indian Journal of Nutrition and Dietetics, 58(7), 780-788.

Victora, C. G., Barros, A. J. D., França, G. V. A., & Bhutta, Z. A. (2021). Redesigning maternal and child undernutrition interventions: rationale, intervention packages, and impact. The Lancet, 398(10304), 939-952.

WHO & UNICEF. (2021). Implementation guidance: protecting, promoting and supporting exclusive breastfeeding for 6 months. World Health Organization and the United Nations Children's Fund.

WHO. (2017). Complementary feeding of breastfed infants: a guide for health workers. World Health Organization.

WHO. (2023). Infant and young child feeding. World Health Organization.

Wrottesley, S. V., Prioreschi, A., Slemming, W., Cohen, E., Dennis, C. L., & Norris, S. A. (2021). Maternal perspectives on infant feeding practices in Soweto, South Africa. Public Health Nutrition, 24(12), 3602–3614. https://doi.org/10.1017/S1368980020002451

Annexure 3.1: IECHR CERTIFICATE

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. Nidhi Shah study titled; "Parental feeding style and dietary quality of complementary food among 6-24 months children in Rural block of Dabhoi." 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./10/2024/31.

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: CONSENT FORM

The Maharaja Sayajirao University of Baroda

Faculty of Family and Community Sciences

Department of Foods and Nutrition

INFORMATION LETTER FOR MOTHERS/FATHER

I Nidhi Shah, 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 - 2 years) 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: Nidhi Shah

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

The Maharaja Sayajirao University of Baroda

Faculty of Family and Community Sciences

Department of Foods and Nutrition

માહિતી પત્ર

હું નિધિ શાહ, સિનિયર M.Sc.ની વિદ્યાર્થીની. બરોડાની મહારાજા સયાજીરાવ યુનિવર્સિટીમાં ખોરાક અને પોષણ વિભાગમાં, ડૉ. શ્રુતિ કાંટાવાલાના 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

(વિદ્યાર્થીની): નિધિ શાહ

ખોરાક અને પોષણ વિભાગ,મહારાજા સયાજીરાવ યુનિવર્સિટી ઓફ બરોડા.

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: _____

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 3.3

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	
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/Hight(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 =Dug well protected 6 = Dug well unprotected 7= Bottled water

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) 2 = Other Don't know/no answer = 88
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_____)

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 behaviors? 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 a 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 month 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	000	

	If less than one hour, record "00" hours If less than 24 hours, record hours Otherwise, record days		
	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	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night?	Yes or No	Don't Know (DK)
6.1	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 cat 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	Thrice a week	Once a week	Once in 10 days	Once in 15 days	Once in a month	Occasionally	Never

		week							
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 suger									

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	Always
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 (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	1	2	3	4	5

offering a non-food reward (for example: favourite toy or sticker).					
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

PHOTO GALLERY