DISSERTATION TRAINING

at

MedTourEsay India

DISSERTATION TITLE

A study on factors affecting complementary feeding practices among infants and young children (6–23 months) attending urban Anganwadi centers in Delhi.

SUBMITTED BY

Dr. Laxmi Singh [PG/24/048]

UNDER THE SUPERVISION AND GUIDANCE OF

Dr. Diksha Gautam

Assistant Professor

PGDM (Hospital & Health Management)

2024 - 2026

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Certificate from mentor and Dean Academic and Student Affairs

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Laxmi Singh** student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at **MedTourEasy INDIA** from **01/04/2026** to **28/05/2026**.

The Candidate has successfully carried out the project designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical. The Internship is in fulfillment of the course requirements.

I wish him all success in all his/her future endeavors.

Dr. Punit Yadav

Academic and Student Affairs
IIHMR, New Delhi

Dr. Diksha Gautam
Mentor

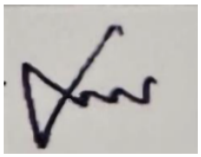
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The following dissertation titled **"A Study on factors affecting complementary feeding practices among infants and young children (6-23 months) attending Urban Anganwadi centres in Delhi "** at **"MedTourEasy INDIA"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

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Dr . Diksha Gautam	

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This is to certify that **Dr. Laxmi Singh,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation titled "**A Study on factors affecting complementary feeding practices among infants and young children (6-23 months) attending Urban Anganwadi centres in Delhi**" at " **MedTourEasy INDIA**" in partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.



Name of the Mentor: **Dr. Diksha Gautam**
Designation: **Assistant Professor**
Organization: **IIHMR, Delhi**

International Institute Of Health Management Research, New Delhi

CERTIFICATE BY STUDENT

It is hereby certified that the above mentioned dissertation title "**A Study on factors affecting complementary feeding practices among infants and young children (6-23 months) attending Urban Anganwadi centers in Delhi**" submitted by **Dr. Laxmi Singh**, Enrollment Number **PG/ 24/ 048** under the guidance of **Dr. Diksha Gautam** for award of **PGDM (Hospital & Health Management)** of the Institute done in the period of **April 2026 to May 2026** contains my own efforts and has not been used for awarding any other degree/diploma/fellowship/ associate ship /titles at this Institute or any other institution of higher learning.

SIGNATURE

Dr. Laxmi Singh

CERTIFICATE OF APPROVAL

The Dissertation Project of titled "**A study on factors affecting complementary feeding practices among infants and young children (6–23 Months) attending urban Anganwadi centers in Delhi**" at **Medtoureasy India**, submitted by **Dr. Laxmi Singh [PG/24/048]**is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite or the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the report only for the purpose it is submitted.



Name of the Mentor: **Dr. Diksha Gautam**
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Attendance: Full

Objectives met: Yes

Deliverables:
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Strengths: A relevant and important public health topic. The report is well-structured, clearly written, and demonstrates good analytical and research skills.

Suggestions for Improvement: Future work may benefit from advanced statistical analysis, example, regression, and a more detailed discussion of findings in relation to existing evidence and policy implications.

Signature of the Officer-in-Charge (Internship)



Dr. Diksha Gautam
Date: 06/06/2026
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This is to certify that Mr/Ms. **Dr. Laxmi Singh**, has successfully completed the Internship program at **MedTourEasy India** from **01/04/2026 to 28/05/2026 .**

During this period Dr. Laxmi had experienced the hands on working of **Health Data Analytics** Professional and worked under the supervision of project mentor & developed the project entitled **"A Study on factors affecting complementary feeding practices among infants and young children (6-12 months) ."**

Dr. Laxmi was found hardworking, punctual and inquisitive, during the tenure of internship.

We wish Dr. Laxmi every success in career.

Ankit Hasija

Training Head

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LETTER OF APPRECIATION

DATE : 28/05/2026

Dear **Dr. Laxmi Singh,**

On behalf of the entire team we would like to appreciate your dedicated efforts and performance towards the department and the never giving up attitude that you have.

We really cherish the great amount of hard work shown in completing the tasks within the designated time frames. We appreciate your sincere efforts like to thank you for your enthusiasm to learn and deliver, hereby exceeding expectations .

Wishing you success in all your future endeavors.

Ankit Hasija
Training Head

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I am sincerely grateful for the opportunity to complete my dissertation internship with MedTourEasy India. This experience has significantly contributed to my professional growth and personal development in the field of Healthcare Data Analytics and has enriched my understanding of digital health systems and analytical processes in the healthcare domain.

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I take this opportunity to thank my colleagues and highly appreciate the friendships formed during this period, for the support, and making this period enjoyable. I am also thankful to my family and close friends. Their support, belief, encouragement, and especially their presence has supported me greatly during this period.

Dr. Laxmi Singh

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ORGANIZATIONAL PROFILE

INTRODUCTION

MedTourEasy India is a healthcare technology and healthcare services organization aimed at improving the quality of healthcare delivery through innovative solutions, healthcare analytics, medical tourism assistance, and professional training programs. The organization was formed in 2015 and has its headquarters in New Delhi, India. MedTourEasy India operates with the aim of addressing any gap existing among patients, healthcare practitioners, healthcare institutions, and healthcare technologies for the betterment of healthcare delivery.



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The organization was established with the primary aim of providing medical tourism services, especially in terms of ensuring that patients get easy access to affordable and high-quality healthcare delivered at reputable hospitals and healthcare organizations. However, over time, the organization has diversified into other areas such as healthcare analytics, digital health solutions, telemedicine services, healthcare consulting, and workforce development in the healthcare industry.

Besides, MedTourEasy India plays a key role in creating healthcare analytics and promoting the digitalization of the healthcare industry. The above goal has been largely made possible through the healthcare analytics section of the organization, which provides a number of solutions with regard to data management in the healthcare sector, business intelligence, prediction and analytics, data visualization, and decision support systems.

Apart from its core areas of healthcare services provision and healthcare analytics, MedTourEasy also plays a major role in the area of skills development in relation to internships and training programs in healthcare analytics, business analytics, data sciences, healthcare management, and digital healthcare. The above mentioned areas of skills development are aimed at ensuring that learners develop necessary skills for tackling challenges in the healthcare industry.

The organization operates within a variety of healthcare sectors including healthcare consultation, telemedicine, healthcare support services, healthcare analytics, public health initiatives, and digital healthcare innovation among others. With its integration of healthcare expertise and knowledge together with information technology and analysis of information, MedTourEasy focuses on creating sustainable solutions in healthcare services delivery.

ORGANIZATION'S MISSION

" To provide access to quality healthcare for everyone regardless of location, time constraints, or financial limitations by connecting patients with trusted healthcare providers and leveraging technology-driven healthcare solutions. The organization also focuses on promoting healthcare analytics and data-driven decision-making within the healthcare ecosystem."

ORGANIZATION'S VISION

" To become a global leader in healthcare accessibility, transparency, and digital health innovation by empowering patients, healthcare providers, and organizations with reliable healthcare information, analytics, and technology-enabled solutions."

DISSERTATION REPORT

A study on factors affecting complementary feeding practices among infants and young children (6–23 months) attending urban Anganwadi centres in Delhi.



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ABSTRACT

Background: Proper complementary feeding for the age group of 6-23 months is crucial to ensure proper growth and development. Improper feeding practices may cause malnutrition and health-related problems among children. This is a critical period for proper nutrition for proper growth and development of children.

Objectives: To examine complementary feeding practices among 6–23 months-old children attending chosen Anganwadi Centres in Delhi and to determine the variables linked to improper feeding patterns. The challenges that moms encounter in implementing suitable complementary feeding methods will also be investigated in this study.

Methodology: A cross-sectional community-based study was carried out on 110 moms of children between the ages of 6 and 23 months. To learn about complementary feeding habits, a semi-structured interviewer administered questionnaire was employed. The World Health Organization's infant and young child feeding (IYCF) indicators were applied to identify practices including Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF), and Minimum Acceptable Diet (MAD). The findings were examined using descriptive analysis and bivariate analysis.

Results: Almost fifty percent of mothers started giving their children complementary foods at six months. Although two thirds of children had the right meal frequency, one third satisfied minimum acceptable food criteria. Better nutrition intake and nutritional level of the children resulted from higher levels of maternal education, income, and counselling experience.

Conclusion: The complementary feeding patterns of children attending rural Anganwadi institutions in Delhi were deficient, particularly with regard to minimum acceptable diet intake and dietary variety. Improving nutrition counselling techniques, education, and community-based activities could assist to enhance children's nutritional condition and food intake.

Keywords: Complementary Feeding, Infant and Young Child Feeding, Dietary Diversity, Minimum Acceptable Diet, Anganwadi Centres, Child Nutrition.

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ABBREVIATIONS

ABBREVIATIONS	MEANING
CF	Complementary Feeding
FLW	Frontline Workers
AWW	Anganwadi worker
ASHA	Accredited Social Health Activist
WHO	World Health Organization
IYFP	Infant And Young Feeding Practices
NFHS	National Family Health Survey
MoHFW	Ministry of Health and Family Welfare
ICDS	Integrated Child Development Services
GHI	Global Hunger Index
CHW	Community Health Worker
HBYC	Home-Based Care for Young Child
ANC	Antenatal care
PNC	Postnatal care
SHG	Self Help Group
MAD	Minimum Adequate Diet
MDD	Minimum Dietary Diversity
ADDI	Adequate Diversified Dietary Intake
MMF	Minimum Meal Frequency
BCC	Behavior Change Communication
NHM	National Health Mission
VHND	Village Health and Nutrition Day
UNICEF	United Nations International Childrens Emergency Fund

CHAPTER I

1.1. BACKGROUND

The time frame ranging between 6 months and 23 months can be described as a highly significant and critical time for the infants when they move from exclusive breast feeding to a wider range of diet (1). After the birth of an infant, exclusive breast feeding is initiated, where the breast milk of the mother acts as the sole source of nutrients and antibodies for the optimum growth of the infant (2). But when the baby grows up, their nutrition needs begin to increase; hence there becomes a need to introduce complementary feeds (2,3).

Complementary feeding is offering solid/semi-solid food to the breast fed/formula fed child after 6 months till 23 months of age (3,4). By introducing complementary feeds, the child gets an assortment of food that provides balanced nutrients needed for proper growth and development of the infant (3). Poor or inadequate practice of complementary feeding adversely affects the health and development of the child. Poor feeding practices that do not meet the child's needs lead to under nutrition, which could have adverse effects on the wellbeing of the child in the short term and even in the future. This inadequate intake of complementary food is one of the main causes of poor health and malnutrition in children making them vulnerable to infectious diseases and mortality.

In 2020, there were an estimated 149 million stunted children (short for their age) worldwide under five years; wasted children (thin for their height) numbered 45 million; overweight/obese children totalled 38.9 million (1). Furthermore, undernutrition accounted for almost 45% of fatalities that happened among children under five years old (1,4). Low- and middle-income nations (LMICs) continue to struggle with undernutrition, with India carrying one of the highest burden worldwide. With a staggering 19.3 percent child wasting rate—the highest globally (2)—India's hunger index ranking was 107th among 121 nations in 2022. The results of NFHS-V show that in India, the stunting rate among children under five was found to be about 35.5% (3). Furthermore noted for children under five years was a wasting prevalence of 19.3% and an underweight prevalence of 32.1% (3). Under nutrition accounts for about 45% of fatalities among children under five years of age. Furthermore, malnutrition makes children more vulnerable to death from frequent infections. It lowers the pace of rehabilitation and exposes the kids to greater vulnerability to illness (5).

Even though Delhi is the nation's capital and hence possesses comparatively good facilities for its people, nutritional disparities remain among children in the urban slums, resettlements, and migrants' camps in Delhi. Urbanization, overpopulation, poverty, poor food security, and lack of hygiene are some reasons why malnutrition is prevalent due to improper feeding practices among vulnerable urban population groups (1,4,5). Children living in underprivileged areas in cities have been found to suffer from dietary inadequacies and inconsistent feeding behaviour even though there are good health and nutrition services available (3).

The 1,000-day window begins from conception through to a child's second birthday which is a critical period in which the basic foundations of an individual's health, nutrition, and proper growth are laid (5). Six to twenty-three month period is very critical to encourage healthy eating behaviour among children and prevent malnutrition; therefore, practice of optimal complementary feeding becomes very crucial in these months of development (6). For optimal complementary feeding practice, the World Health Organization has put up some guidelines regarding feed consistency and feed frequency, minimum dietary diversity and minimum acceptable diet (7).

Despite established recommendations, complementary feeding practices and food choices vary considerably across settings. Inappropriate feeding practices among mothers and other caregivers remains a major concern. Assessing complementary feeding practices is essential for evaluating the adequacy and quality of foods introduced during infancy. Although a balanced diet comprising fruits, vegetables, legumes, cereals, proteins, and healthy fats is recommended, many infants continue to receive diets that are inadequate in quantity, quality, or diversity, thereby compromising optimal growth and development. (9).

One of the important programs of maternal and child nutrition in India is Integrated Child Development Services Program (10). It is focused on improving the nutritional status of mothers and children. The centres provide supplementary food, nutrition education, immunization and early childhood care services. It is critical to mention the importance of urban Anganwadi centres that cater to poor populations. However, the utilization and effectiveness of such services may differ from one person to another based on awareness, accessibility, and practices at the family level (11).

Assessment of the current practices in complementary feeding will not only enable us to know the practices that exist now but will help us identify the issues and constraints that make optimal practices difficult to achieve as well as come up with measures to deal with the problems (12). Existing studies conducted across country explored various factors like cultural practices, customs, traditions, and beliefs that significantly influence the feeding practices (3,5,8). The different cultural practices in different geographical regions affect the introduction of solid foods, feeding techniques and the types of food. This information will help formulate measures for improving feeding practices by taking into consideration the diverse culture (14). The information concerning various optimal feeding practices will greatly influence the feeding practices since mothers play a central role in determining what, when and how to feed their babies (15).

Both maternal education and nutritional counselling were found to be significant determinant factors affecting the complementary feeding practices appropriately (7,8,15,16). Parents whose mothers are counselled by frontline health workers including ASHAs, ANMs, and Anganwadi workers initiate complementary feeding in time and also ensure that there is an adequate meal frequency and dietary diversity (7,9). Unfortunately, poor counselling coverage, misconceptions about child feeding, and beliefs about child nutrition adversely affect complementary feeding practices in urban slum areas (16).

Lack of knowledge and misconceptions about complementary feeding practice leads to inadequate frequency and diversity (17). Socioeconomic factors are also essential for determining feeding practices of infants (9). For instance, it is necessary to examine parents' knowledge, beliefs, and socioeconomic factors in order to design appropriate interventions aimed at improving complementary feeding practices (18). Indeed, research done in India and other urban slums shows that only 30-40% of Indian children are provided with minimum dietary diversity and minimum acceptable diet. Consequently, it means that the majority of children are subjected to improper complementary feeding practices (19).

Further, in the context of urban environments, increased maternal work burden, informal work, and lack of family support could be other important factors that can affect complementary feeding practices (20). Maternal work for wages and informal jobs could result in constraints due to lack of time, food preparation, and responsive feeding practices, which in turn affect the quality of feeds being offered to children (8,15,16). Although there are some existing studies conducted on complementary feeding practices in various parts of India, few studies were conducted among the urban Anganwadi population in Delhi that examine socio-demographic factors, maternal knowledge and perceived barriers simultaneously (22). This study is conducted to identify local evidence that can be helpful for designing appropriate nutritional counselling and interventions for improving complementary feeding practices (23).

The objective of this study is to determine the current complementary feeding practices of infants and toddlers aged between 6-23 months in urban Anganwadi setting and to investigate determinants of appropriate complementary feeding practices, as it is an important step of infants that would bring about sound physical as well as cognitive function (24).

1.2. RATIONALE

Provision of appropriate complementary feeding in the age group of 6-23 months is crucial to ensure proper growth and development of an infant/young child. This particular age is a very important stage in terms of child development when failure in achieving adequate nutrition can cause serious consequences like stunting, wasting, infections, underperformance in learning activities, increased susceptibility to diseases, and even high risks of morbidity/mortality (1,4). However, despite a wide range of programs and initiatives implemented across the country, many Indian families tend to adopt inappropriate complementary feeding practices in this critical stage of childhood.

Overcrowding, poverty, low level of food security, unsanitary conditions, population mobility, and lack of proper access to medical care can be some of the problems that prevail in urban slums and resettlement colonies in Delhi and may affect the feeding practices (3,18). While nutrition counselling services along with supplementary nutrition provisions are offered through Anganwadi centres of the ICDS program, there still exist numerous issues related to nutrition knowledge and feeding practices among the caregivers of young children (22).

The main barriers faced by mothers and caregivers include lack of knowledge about appropriate diet, cultural beliefs, low financial background, excessive workload, and lack of family support (8,15). Moreover, there is not much evidence about inappropriate complementary feeding practices among children in the urban Anganwadi centres of Delhi along with the socio-demographic and maternal factors that contribute to such practices (21,24).

Thus, this study is necessary to evaluate the complementary feeding practices among children between 6 and 23 months of age in the urban Anganwadi centres and to determine the factors affecting the feeding practices. The results of this study will be useful in developing evidence-based practices for counselling mothers about nutrition, which could be helpful for policymakers in urban areas.

1.3. AIM

To determine how common, what causes, and what challenges mothers face in adopting appropriate feeding practices for their children aged 6 to 23 months in chosen Anganwadi Centres in Delhi.

1.4. OBJECTIVE

Primary Objective

- To estimate the prevalence of inappropriate complementary feeding practices among children aged 6–23 months attending selected urban Anganwadi centers.

Secondary Objective

- To determine the association between socio-demographic factors and inappropriate complementary feeding practices.
- To identify perceived barriers to appropriate complementary feeding practices.

CHAPTER II

REVIEW OF LITERATURE

S. No	Title of Study	Authors, Publication year	Study Type, Study Location, Sample size	Key Findings	Link/DOI
1	Malnutrition	World Health Organization, N/A	Global Fact Sheet / Report, Global, N/A	Child Nutrition and Health • Defines stunting, wasting, underweight, overweight, and obesity in children. • Undernutrition causes nearly half of deaths in children under five worldwide • Good nutrition during infancy and early childhood is essential for growth • Poor feeding practices and inadequate diet contribute to malnutrition	https://www.who.int/news-room/fact-sheets/detail/malnutrition
2	Global Hunger Index 2022: India	Concern Worldwide, Welthungerhilfe, 2022	Annual Statistical Report, India, National scale	• India placed 107th out of 121 nations in the 2022 Global Hunger Index. • Showing ongoing nutritional issues, child wasting is among the highest worldwide. • Despite economic growth, undernutrition remains a significant public health problem. • Emphasizes the necessity of focused nutritional treatments meant for maternal and infant health.	https://www.globalhungerindex.org
3	National Family Health Survey (NFHS-5), India, 2019–21	International Institute for Population Sciences (IIPS), ICF, 2021	National Cross-Sectional Survey, India, National & State level representation	• Among kids under five years of age, stunting, wasting, and underweight are highly prevalent. • Showed major regional and economic	https://dhsprogram.com

				inequalities in child nutritional level. • Recognized child nutrition's major predictors as household wealth, mother education, and health service availability. • Offered data on infant and young child feeding patterns, including complementary feeding indicators and breastfeeding.	
4	Malnutrition in Children	UNICEF, N/A	Global Data Monitoring Report, Global, N/A	• Tracks worldwide patterns in underweight, overweight, wasting, and childhood stunting. • Emphasizes ongoing disparities in child nutrition among low- and middle-income nations. • Underweight still significantly increases child mortality and morbidity. • Stresses the need of early dietary changes to raise child survival and development.	https://data.unicef.org/topic/nutrition/malnutrition
5	The first 1,000 days of life: The brain's window of opportunity	UNICEF Office of Research, N/A	Research Brief / Report, Global, N/A	• Says that the first 1,000 days are very important for physical growth and the growth of the brain. • Good nutrition during this time helps cognitive and educational results over time. • Early life nutritional inadequacies could cause permanent developmental problems. • Early dietary changes could help adult health, output, and quality of life.	https://www.unicef-irc.org
6	Indicators for assessing infant and young child feeding practices: definitions and	World Health Organization, UNICEF, 2021	Global Guidelines / Methodological Manual, Global, N/A	• Offers consistent definitions for Infant and Young Child Feeding (IYCF) measures. • Presents actions including Minimum Dietary Diversity (MDD), Minimum Meal	https://www.who.int/publications

	measurement methods			Frequency (MMF), and Minimum Acceptable Diet (MAD). • Helps to analyze feeding patterns among nations and groups of people. • Acts as the worldwide reference system for tracking and assessing complementary feeding methods.	
7	Role of Mitanin community health workers in improving complementary feeding practices under scaled-up home-based care of young children in a rural region of India	Garg S, Dewangan M, Patel K, Krishnendhu C, Nanda P, 2023	Program Evaluation / Research Study, Rural India, Community-based cohort	• Community health workers greatly increased mother knowledge on complementary feeding. • Home-based counselling encouraged quick adoption of complementary feeding techniques. • Among participant families, diet variety and feeding frequency both rose. • Showed how well community-based programs improved child nutrition results.	https://bmcpublichealth.biomedcentral.com
8	Determinants of complementary feeding practices among children aged 6–24 months in urban slums of Pune, Maharashtra, India	Jeyakumar A, Babar P, Menon P, Nair R, Jungari S, Medhekar A, et al., 2023	Cross-Sectional Study, Urban Slums (Pune, Maharashtra, India), Children 6–24 months	• Maternal education was strongly related with proper complementary feeding techniques. • Household income and social background impacted the diversity of food. • Urban slum people often started late and had poor eating habits. • Improved nutrition counselling and healthcare access helped to change feeding results.	https://jhpn.biomedcentral.com
9	Association of BCC Module Roll-Out in SHG meetings with changes in complementary feeding	Mondal S, Joe W, Akhauri S, Thakur P, Kumar A, Pradhan N, et al., 2023	Intervention Impact Evaluation, Rural Bihar, India, Children 6–23 months	• Behaviour Change Communication (BCC) initiatives greatly enhanced complementary feeding practices. • Among kids whose moms attended SHG meetings, dietary variety grew.	2023 Study Publication

	and dietary diversity among children (6–23 months): Evidence from rural Bihar, India			• Community-based nutrition education helped moms become more knowledgeable and aware. • Promoting good feeding practices and child nutrition by means of SHGs was quite successful.	
10	Infant young child feeding practices in an Indian maternal-child birth cohort in Belagavi, Karnataka	Khandelwal S, Kondal D, Chakravarti AR, Dutta S, Banerjee B, Chaudhry M, et al., 2022	Maternal-Child Birth Cohort Study, Belagavi, Karnataka, India, Longitudinal Cohort	• Recommended IYCF practices compliance was still poor across several age groups. • Timely introduction of complementary feeding improved as children grew older. • Maternal counselling and healthcare contact significantly impacted eating patterns. • Despite access to healthcare, dietary diversity and minimum acceptable diet indicator gaps remained.	https://www.mdpi.com
11	Complementary feeding practices among young children in China, India, and Indonesia: A narrative review	Sirkka O, Abrahamse-Berkeveld M, van der Beek EM, 2022	Cross-Country Narrative Review, China, India, and Indonesia, Multiple aggregated literatures	• Feeding methods differed greatly throughout China, India, and Indonesia. • Not enough dietary diversity was a widespread issue in all three nations. • Social economic differences and mother education both affected feeding patterns. • The review underlined the need of culturally competent nutrition programs and improved health systems.	https://academic.oup.com/cdn
12	Contribution of socio-economic and demographic factors to the trend of adequate dietary diversity	Bhati D, Tripathy A, Mishra PS, Srivastava S, 2022	Cross-Sectional Survey Analysis, India, Children 6–23 months	• Attaining minimum diet diversity was very much related with household wealth. • Maternal education had a favourable impact on the variety of foods youngsters consumed. • Urban children were more likely than rural	https://bmcnutr.biomedcentral.com

	intake among children (6–23 months): Evidence from a cross-sectional survey in India			youngsters to eat a varied diet. • Differences in socioeconomic status and population had a major impact on child nutrition results.	
13	The role of complementary feeding in India's high child malnutrition rates: Findings from NFHS-IV (2015–2016) data	Petrikova I, 2021	Secondary Data Analysis (NFHS-4), India, National sample	• In India, inadequate complementary feeding was found to be a significant cause of child malnutrition. • Postponed starting and subpar dietary diversity raise the risk of undernutrition. • Children getting enough complementary feeding had higher nutritional results. • Improved complementary feeding techniques might significantly lower malnutrition rates.	https://link.springer.com
14	Association of minimum dietary diversity and minimum meal frequency with anthropometric parameters among children of 6 to 23 months of age attending immunization clinic of a tertiary care hospital in Pune, Maharashtra, India	Solanki K, Parande M, Salunke N, Sangwan K, Tambe M, 2021	Clinic-Based Cross-Sectional Study, Pune, Maharashtra, India, Children 6–23 months at immunization clinic	• Children meeting MDD and MMF criteria showed superior anthropometric values. • Improved growth outcomes corresponded to sufficient dietary variety. • Not meeting feeding indicators raised the risk of undernutrition. • The study supported WHO-recommended eating habits for healthy development of children.	https://www.researchgate.net

15	Complementary feeding practices and their determinants among children 6–23 months of age in an outpatient hospital setting in Central India: A cross-sectional study	Jain S, Bhan B, Bhatt G, 2020	Hospital-Based Cross-Sectional Study, Central India, Children 6–23 months in outpatient care	• A major percentage of kids fell short of advised complementary feeding standards. • Maternal awareness and education greatly affected dietary habits. • Meal frequency and dietary variety were influenced by household socioeconomic level. • Nutrition counselling was suggested as a means of enhancing infant and small child feeding habits.	https://journals.lww.com/jfmpc
16	Complementary feeding practices and associated factors in children 6–23 months in Uttar Pradesh, India: Program implications	Sankaran D, Sharma P, Isac S, Kumar M, Blanchard J, Moses S, 2020	Programmatic Research Evaluation, Uttar Pradesh, India, Children 6–23 months	• In many homes, complementary feeding methods fell short of WHO standards. • Maternal knowledge and counselling exposure greatly affected feeding practices. • Demographic and socioeconomic aspects influenced meal frequency and food variety. • The study stressed the necessity of improving community-based nutrition initiatives.	https://academic.oup.com/cdn
17	Stunting and severe stunting among infants in India: The role of delayed introduction of complementary foods and community and household factors	Dhami MV, Ogbo FA, Osuagwu UL, Ugboma Z, Agho KE, 2019	Epidemiological Data Analysis, India, Infant national sample	• Delayed initiation of complementary meals was strongly related with stunting and severe stunting. • Children from underprivileged families had a higher risk of bad nutritional results. • Maternal education and family traits affected child nutrition and development. • Early commencement of complementary feeding was noted as a crucial tactic to avoid stunting.	https://www.tandfonline.com

18	Prevalence and factors associated with complementary feeding practices among children aged 6–23 months in India: A regional analysis	Dhami MV, Ogbo FA, Osuagwu UL, Agho KE, 2019	Regional Secondary Data Analysis, India (Regional breakdown), Children 6–23 months	• Complementary feeding methods differed significantly among areas of India. • Maternal schooling and home wealth were both linked to suitable eating habits. • Children from poor homes were less inclined to fulfil recommended dietary guidelines. • The study underlined the need of region-specific nutrition plans and programs.	https://bmcpublichealth.biomedcentral.com
19	Nutritional gaps and supplementation in the first 1000 days	Beluska-Turkan K, Korczak R, Hartell B, Moskal K, Maukonen J, Alexander DE, et al., 2019	Literature Review / Nutrients Analysis, Global context, N/A	• Lack of nutrients during the first 1000 days might significantly impede growth and development. • Mothers and little children frequently lacked micronutrients. • Correct dietary changes and supplements could help to enhance health results. • Optimal physical and cognitive development depends on early dietary help.	https://www.mdpi.com
20	Age-appropriate infant and young child feeding practices are associated with child nutrition in India: Insights from nationally representative data	Menon P, Bamezai A, Subandoro A, Ayoya MA, Aguayo VM, 2013	Secondary Data Analysis, India, Nationally representative sample	• Age-appropriate feeding methods were strongly linked to better nutritional state in children. • Meeting suggested IYCF indicators, children grew better. • Two key indicators of child nutrition were meal frequency and dietary diversity. • The results underlined the need of encouraging WHO-recommended eating habits all around.	https://onlinelibrary.wiley.com
21	Determinants of inappropriate	Kabir I, Khanam M, Agho KE, Mihrshahi S,	Secondary Survey Data Analysis (DHS), Bangladesh,	• One of the main predictors of suitable supplementary feeding	https://pubmed.ncbi.nlm.nih.gov

	complementary feeding practices in infant and young children in Bangladesh: Secondary data analysis of Demographic Health Survey 2007	Dibley MJ, Roy SK, 2011	National infant and child sample	practices was mother education. • Family socioeconomic level affected food diversity and feeding sufficiency. • Not having enough knowledge about mothers helped to cause improper eating patterns. • The report suggested increasing local, community-based nutrition education and awareness initiatives.	
22	Guidelines for enhancing optimal infant and young child feeding practices	Ministry of Health and Family Welfare, N/A	National Policy Guidelines, Government of India / Nagaland, Policy Framework	• Gives national advice on complementary feeding techniques and breastfeeding. • Stresses the need of timely starting of complementary feeding at six months of age. • Recommends eating a range of foods suitable for one's age as well as meal frequency and ongoing breastfeeding up to two years or more. • Serves as a policy guide for improving community-based initiatives and nutrition counselling.	https://nhmnagaland.in
23	Nearly 1 in 3 Indians middle class, to double in 25 years: Report	Times of India, N/A	Media News Report, India, National economic study	• Draws attention to the expanding middle class and shifting India's social and economic climate. • Increased household income could help one to eat a wide variety of healthy foods. • Financial situation affects food consumption patterns and dietary decisions. • Socioeconomic factors still compromise nutritional results in vulnerable groups.	https://timesofindia.indiatimes.com

24	Assessment of prevailing supplementary and weaning practices in the selected area of Allahabad	Ali AI, VAPV, 2018	Regional Assessment / Field Study, Allahabad, Uttar Pradesh, India, Local field sample	• Weaning and eating choices were much affected by traditional beliefs and customs. • Some moms were seen to have delayed supplement food introduction. • Maternal knowledge and awareness were crucial in guiding feeding patterns. • The study underlined the need of dietary knowledge and advising to help infants to eat better.	https://www.phytojournal.com

CHAPTER III

METHODOLOGY

3.1. Research Questions

- What proportion of children aged 6–23 months receive inappropriate complementary feeding?
- What socio-demographic and maternal factors are associated with inappropriate complementary feeding practices?
- What barriers are perceived by mothers in providing appropriate complementary feeding?

3.2. Study Design

Among mothers/caregivers of children aged 6–23 months present at chosen urban Anganwadi Centers in Delhi, a cross-sectional study was done to evaluate the frequency and causes of inappropriate complementary feeding behaviour.

3.3. Study Setting

The study was conducted in selected urban Anganwadi's in low-income colonies and resettlement colonies of Delhi where the main clientele of the centres is mainly urban poor and migrants and there was a significant number of children aged 6-23 months registered at ICDS centres.
Total of fifteen Anganwadi's were taken into account for the study, which fulfilled the following criteria; ease of accessibility, adequate number of eligible infants, and diversity of urban slums and resettlement areas. The centres were:

1. Anganwadi Centre - Jahangir Puri, Block B
2. Anganwadi Centre - Trilokpuri, Block 27
3. Anganwadi Centre - Sangam Vihar, Block H
4. Anganwadi Centre - Seema Puri, East Delhi
5. Anganwadi Centre - Dakshin Puri, Sector 5
6. Anganwadi Centre - Madan pur Khadar, South Delhi
7. Anganwadi Centre - Mangol puri, Block R
8. Anganwadi Centre - Narela, Bawana Road
9. Anganwadi Centre - Shahdara, Mansarovar Park
10. Anganwadi Centre - Sultanpuri, Block C
11. Anganwadi Centre - Bhajanpura, Northeast Delhi
12. Anganwadi Centre - Kalyanpuri, Block 18
13. Anganwadi Centre - Khichripur, Block G
14. Anganwadi Centre - Govindpuri, Kalkaji Extension
15. Anganwadi Centre - Tughlakabad Extension

3.4. Study Population

The study population included mothers of children aged 6–23 months registered at the selected urban Anganwadi centres in Delhi.

3.5. Inclusion Criteria

- Mothers having a child aged 6–23 months registered at the selected Anganwadi centers.
- Mothers who have been residing in the study area for at least the past six months.
- Mothers who provide written informed consent to participate in the study.

3.6. Exclusion Criteria

- Mothers of children who are seriously ill at the time of data collection.
- Caregivers other than biological mothers.
- Mothers who are unwilling to participate.

3.7. Sampling techniques and Sample size

Sampling Technique: For the choice of study participants as well as Anganwadi centers, a non-probability convenience sampling method was applied. Based on accessibility, availability of qualified participants, and willingness to engage in the study, fifteen metropolitan Anganwadi facilities were chosen. Mothers of children aged 6 to 23 months presenting the chosen centers meeting the inclusion criteria and giving informed consent were recruited successively until the necessary sample size was reached.

Sample Size: Among 110 qualified moms of children aged 6–23 months enrolled at certain urban Anganwadi Centers, the poll was carried out. A pretested semi-structured interviewer-administered questionnaire helped to gather data. Before participating, participants were told about the study's goal, goals, and voluntary nature as well as their informed consent. Just moms fulfilling the chosen inclusiveness requirements were registered.

$$n = \frac{Z^2 \times p \times q}{d^2}$$

Confidence level = 95% → Z = 1.96
Estimated prevalence of inappropriate feeding practices = 60% → p = 0.6
Margin of error (d) = 9% → d = 0.09, n = 114 (approx.)

Therefore, a minimum of 114 mothers were required to estimate complementary feeding practices with 9% precision at a 95% confidence level.

The calculated minimum sample size was 114 participants. After accounting for an anticipated non-response rate of approximately 5%, the target sample size was increased to 120. A total of 110 eligible mothers completed the survey and were included in the final analysis.

3.8. Data Collection Tool and Procedure

Trained interviewers gave the questionnaire in the local language to make sure responses were understood and complete. Paper-based forms were used to gather data, and every interview took about 15–20 minutes to finish. Data on socio-demographic factors, complementary feeding techniques following WHO Infant and Young Child Feeding (IYCF) guidelines, mother knowledge on complementary feeding, exposure to nutrition counselling, and perceived impediments to correct feeding practices were gathered.

The questionnaire was piloted among a small group of participants outside the study area to guarantee data quality and needed changes were made prior to data collection. Daily checks for consistency and completeness were done on returned questionnaires.

NFHS-5 shows that a large percentage of youngsters 6–23 months old do not eat a least number of food groups (minimum dietary variety indicator) and their average daily intake of dietary diversity (minimum tolerable diet indicator) is deficient. As a consequence, about 60% or more youngsters are projected to have improper complementary feeding patterns (8).

3.9. Operational Definitions

1. Inappropriate Complementary Feeding Practice
A youngster between 6 and 23 months would be thought to have a bad complementary feeding practice if he or she did not meet any of the WHO Infant and Young Child Feeding criteria (6).

2. Minimum dietary diversity (MDD)
Children between the ages of 6 and 23 months that have eaten at least five of eight possible food groups in the past 24 hours These food categories comprise breast milk, cereals, grains, pulses, meat, fish, eggs, milk, and vitamin A-rich fruits/vegetables (6).

3. Minimum acceptable diet (MAD)
MAD will be considered adequate for breast-fed children if the youngster had minimum dietary diversity and minimum meal frequency fit for his/her age in the previous 24 hours. In addition to two milk feedings over the previous 24 hours, MAD will be deemed sufficient for non–breast-fed infants if the child was on minimum dietary diversity and minimum meal frequency. For every measure, the 6 to 23 month old youngsters (6) will be the denominator.

4. Exclusive Breastfeeding
Exclusive breastfeeding means that the youngster has only had breast milk during the first six months of life, without adding any other meals or drinks, such animal milk, water, or other liquids.

3.10. Data Analysis Technique

Any incompleteness, partial filling, or mistakes discovered in the collected data was verified. Microsoft Excel, Power BI, and Tableau were used to do data analysis and cleaning.

Univariate analysis was done to profile mothers and children's socioeconomic features as well as their complementary feeding practices, mother knowledge about complementary feeding, and other study variables. Where applicable, results were given using suitable descriptive statistics such as frequencies, percentages, means, and standard deviations.

To evaluate the relationship between socioeconomic, cultural, religious, and other explanatory factors and complementary feeding behaviours, descriptive **bivariate analysis** was done. Chi-square test was used to look at associations. The main outcome variable was timely beginning of complementary feeding and sufficiency. Prevalence data were provided wherever relevant. At a p-value of 0.05, statistical significance was evaluated.

3.11. Time frame

The study was completed over a period of approximately two months (April 2026–May 2026). Data entry, data cleaning, statistical analysis, and report writing were completed during the final two weeks, followed by submission of the dissertation report.

3.12. Ethical Considerations

- Consent was obtained from each participant of the study. The purpose of the study was made clear to every participant before carrying out the interview.
- Those who refused to be involved in the study were never coerced in any way.
- All the participants have been explained how and why their data is going to be used. The storage of data was carried out in a safe place with password protection.
- For those cases where complementary feeding problems are detected, brief counselling was provided to the mother/caregiver about appropriate feeding practices based on the age of the child. For such cases, referral was also made to the Anganwadi Worker/ASHA/ANM or the nearest health facility as necessary.

CHAPTER IV

RESULTS

A: Population Characteristics And Their Feeding Practices

A univariate analysis was performed to examine the characteristics of the study population in relation to the prevailing complementary feeding practices.

* Socio Demographic Characteristics of the participants-

TABLE 4.1

Section	Category	Frequency	Percentage
*** Age of the mother**	Under 20 years old	1	1%
	20-29 years old	93	85%
	30-39 years old	16	15%
*** Mothers highest level of education**	No formal education	4	4%
	Primary education	1	1%
	Secondary education	27	25%
	Higher Secondary education	31	28%
	Graduate and above	47	43%
*** Mothers working status**	Working	9	8%
	Homemaker/Housewife	101	92%
*** Gender of the baby**	Male	65	59%
	Female	45	41%
*** Age of the baby**	6-8 months	21	19%
	9-12 months	29	26%
	1-2 years	60	55%
*** Birth Order**	First	57	52%
	Second	36	33%
	Third	11	10%
	Fourth	6	5%

Table 4.1 describes the socio-demographic characteristics of the 110 mothers and their children aged 6–23 months. The majority of mothers, 85% (93), were aged 20–29 years, followed by 15% (16) who were aged 30–39 years, while only 1% (1) were below 20 years of age. Regarding educational status, 43% (47) of mothers were graduates or above, 28% (31) had completed higher

secondary education, 25% (27) had secondary education, 4% (4) had no formal education, and 1% (1) had primary education. Most of the respondents, 92% (101), were homemakers, whereas only 8% (9) were employed.

Among the children surveyed, 59% (65) were male and 41% (45) were female. With respect to age distribution, 19% (21) of the children were aged 6–8 months, 26% (29) were aged 9–12 months, and 55% (60) were aged 12–23 months. Regarding birth order, more than half of the children, 52% (57), were first-born, followed by 33% (36) who were second-born. Additionally, 10% (11) were third-born and 5% (6) were fourth-born children.

* Family and household characteristics of the respondents -

Table 4.2 details the family and house traits of the participants. Almost all of the 99% (109) respondents were Hindus; only 1% (1) were Muslims. Fifty-two percent (57) of the respondents belonged to the Other Backward Class group, followed by 20% (22) from the General Category, 19% (21) from Scheduled Castes, and 9% (10) from Scheduled Tribes. Regarding family structure, 52% (57) of the respondents lived in extended families, 42% (46) belonged to joint families, and 6% (7) resided in nuclear families.

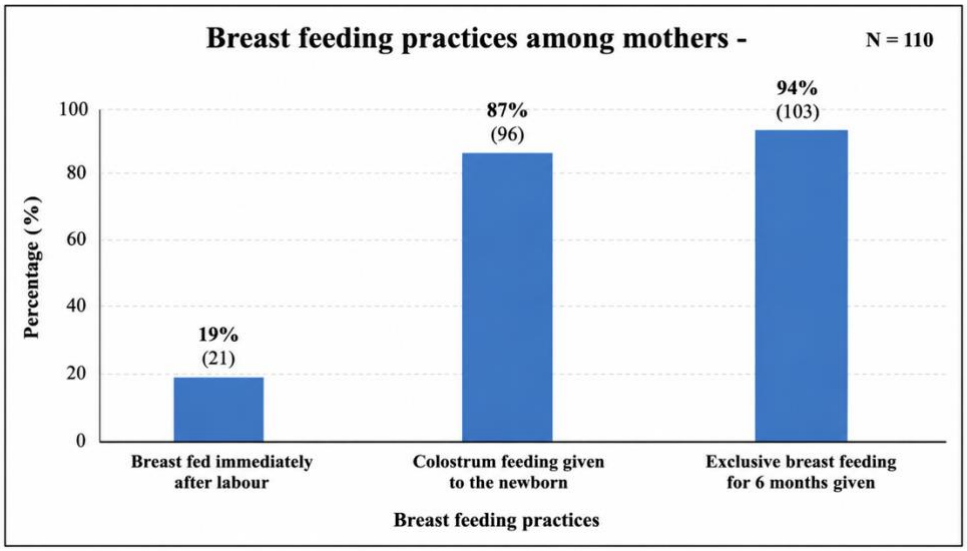
Fifty percent (55) of the respondents' spouses were college graduates or above; 30% (33) had finished higher secondary education; 18% (20) had secondary education; and 2% (2) had no formal education. Regarding occupation, 57% (63) of the respondents' husbands worked in the service industry; then came 21% (23) businesspeople; 11% (12) manual labourers; 6% (7) professionals; 3% (3) pursuing higher education; and 2% (2) farmers. More than two-thirds of the respondents—68% (75)—belonged to the aspirer group with a monthly family income between ₹10,000 and ₹40,000. Roughly 18% (20) belonged to the middle-class group with a monthly income between ₹40,000 and ₹250,000; the remaining 14% (15) belonged to the impoverished group with a monthly income under ₹10,000.

TABLE 4.2 Family and household characteristics of the respondents -

Section	Category	Frequency	Percentage
*** Religion**	Hindu	109	99 %
	Muslim	1	1 %
*** Caste**	General Category	22	2 %
	Schedule caste	21	19 %
	Schedule tribe	10	9 %
	Other backward class	57	52 %
*** Type of family setup**	Extended family	57	52 %
	Joint family	46	42 %
	Nuclear family	7	6 %
*** Respondents Husbands education**	No formal education	2	2 %
	Secondary education	20	18 %
	Higher Secondary education	33	3 %
	Graduate and above	55	5 %
*** Respondent's husbands occupation**	Farmer	2	2 %
	Manual Labourer	12	11 %
	Service industry	63	57 %
	Professional	7	6 %
	Businessman	23	21 %
	Pursuing higher studies	3	3 %
*** Family's monthly income**	Destitutes < Rs.10000/month	15	14 %
	Aspirers Rs.10000-40000/month	75	68 %
	Middle class Rs.40000-250000	20	18 %

* Breast feeding practices among mothers -

FIGURE 4.1

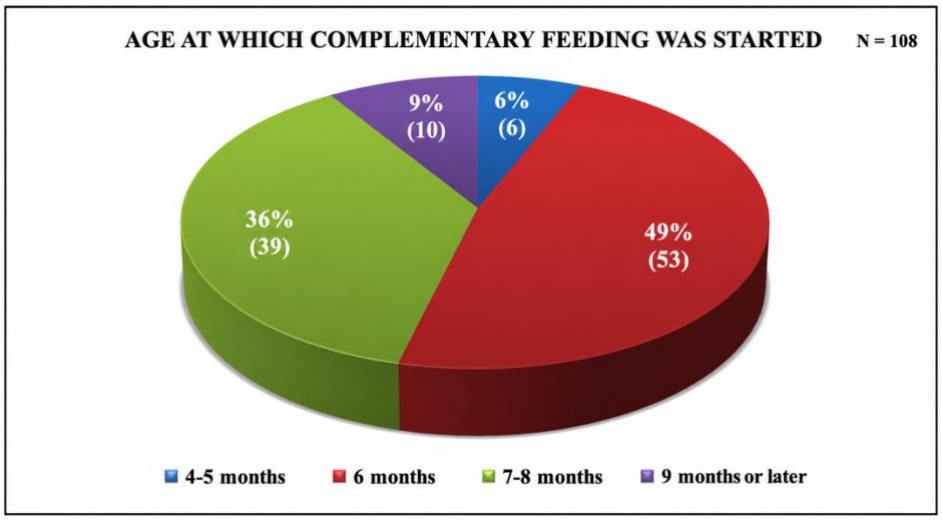


From the above **figure 4.1** It can be observed that only 19% (21) of mothers breastfed their newborn immediately after labour. Nearly 46% (51) initiated breastfeeding within 24 hours of delivery, while 35% (38) breastfed their newborn after 24 hours of delivery. Colostrum feeding was provided by 87% (96) of mothers, whereas 13% (14) did not provide colostrum to their newborns. The most commonly reported reasons were agalactorrhea and admission of the newborn to a critical care unit. Regarding exclusive breastfeeding, 94% (103) of mothers exclusively breastfed their infants for the first six months, while 6% (7) did not. The primary reason reported for not exclusively breastfeeding was agalactorrhea.

* Initiation of complementary feeding practices -

Figure 4.2 depicts how moms started complementary feeding. At six months of age, about half of the mothers, 49% (53), began complementary feeding for their newborns. More than one-third of the moms—36% (39)—started complementary feeding at 7–8 months of age; 9% (10) began it at 9 months or later. By comparison, 6% (six) of the moms started supplemental feeding early at four to five months of age. Furthermore, at the time of the survey 2% (2) of the moms whose kids were 6–8 months old had not yet started complementary feeding.

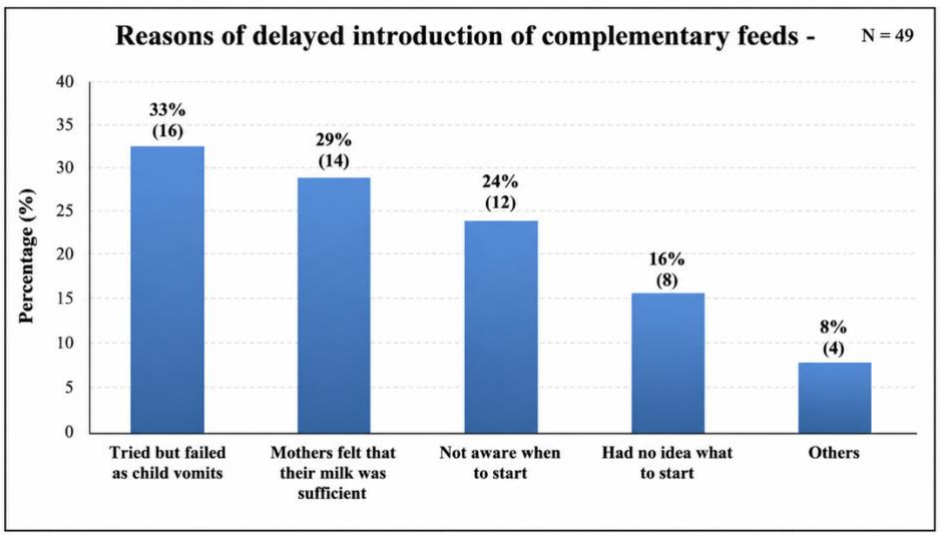
FIGURE 4.2



* Reasons of delayed introduction of complementary feeds -

Figure 4.3 shows the causes of late complementary feeding introduction among moms. Reported by 33% (16) of moms, the most often mentioned cause was the child threw up following feeding. Following this, 29% (14) of mothers said breast milk alone would suffice. Furthermore, 24% (12) of mothers were unaware of the right time to start complementary feeding; 16% (8) had no clue what foods to offer. Another 8% (4) of moms said other things motivated them

FIGURE 4.3



* Characteristics of complementary feeds in different age groups -

TABLE 4.3

Section	Characteristics of complementary feeds	6-8 months (N=19)	9-12 months (N=29)	12-23 months (N=60)
Consistency of feeds	Watery	26%	10%	-
	Semisolid	74%	90%	93%
	Solid	-	3%	17%
Common methods of feeding	Spoon-feeding	100%	93%	85%
	Finger-feeding	5%	17%	22%
	Bottle feeding	11%	3%	8%
	Self-feeding	-	-	13%
Amount of CF per serving	2-3 tablespoons	79%	24%	-
	One-fourth small cup	16%	52%	38%
	Half small cup	5%	17%	45%
	Three fourth cup	-	-	3%
	Small cup	-	7%	15%

Table 4.3, presents the characteristics of complementary feeding practices across three age groups: 6–8 months (N=19), 9–12 months (N=29), and 12–23 months (N=60). Among infants aged 6–8 months, 74% (14) received semisolid complementary feeds, while 26% (5) received feeds with a watery consistency. All infants, 100% (19), were spoon-fed, whereas 11% (2) were bottle-fed and 5% (1) were finger-fed. Regarding the quantity of complementary feeds, 79% (15) received 2–3 tablespoons per serving, 16% (3) received one-fourth of a small cup, and 5% (1) received half a small cup per serving.

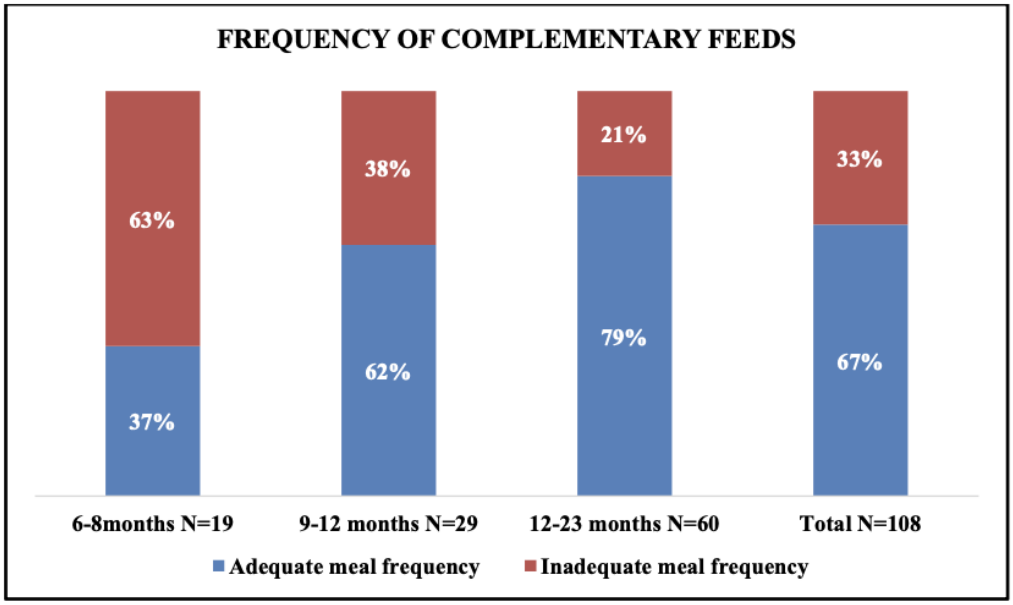
Among infants aged 9–12 months, 90% (26) received semisolid feeds, 10% (3) received watery feeds, and 3% (1) received solid foods. Spoon-feeding was the most common method, practiced among 93% (27) of infants, followed by finger-feeding among 17% (5) and bottle-feeding among 3% (1). More than half of the infants, 52% (15), consumed one-fourth of a small cup per serving, while 24% (7) received 2–3 tablespoons, 17% (5) received half a small cup, and 7% (2) consumed one full small cup per serving.

Among children aged 12–23 months, the majority, 93% (56), received semisolid feeds, while 17% (10) were also given solid foods. Spoon-feeding remained the predominant method at 85% (51), followed by finger-feeding at 22% (13), self-feeding at 13% (8), and bottle-feeding at 8% (5). Regarding the amount of complementary feed provided per serving, 45% (27) consumed half a small cup, 38% (23) consumed one-fourth of a small cup, 15% (9) consumed one full small cup, and 3% (2) consumed three-fourths of a small cup.

Overall, 82% (89) of mothers continued breastfeeding alongside complementary feeding, whereas 18% (19) had discontinued breastfeeding while continuing complementary feeding among children aged 6–23 months.

* Frequency of complementary feeds -

FIGURE 4.4



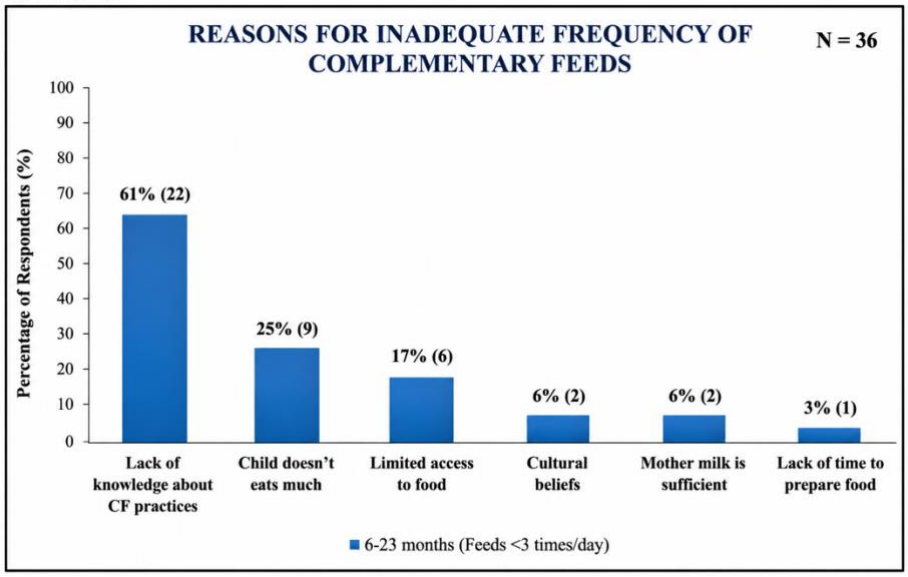
The above **Figure 4.4** shows how often youngsters from various age groups eat complementary meals. Among babies aged six to eight months (N=19), only 37% (7) got the advised meal frequency of two to three meals per day; 63% (12) did not meet the suggested meal frequency. This suggests that a lot of babies in this age range weren't getting complementary meals as often as suggested.

Among the 29 nine-to- twelve-month-old children, 62% (18) followed the recommended meal frequency of 3–4 meals per day; 38% (11) fell short of the recommended frequency. More youngsters in this age group got enough complimentary meals than those under 6–8 months, which points to a development in feeding techniques as the child gets older.

Among children 12–23 months of age (N=60), 79% (47) got the recommended meal frequency of 3–4 meals per day while 21% (13) received complementary feedings less often than advised. Among the whole responders (N=108), 67% (72) of youngsters got enough food frequency given their age; 33% (36) did not meet the advised meal frequency standards.

* Reasons for inadequate frequency of complementary feeds -

FIGURE 4.5



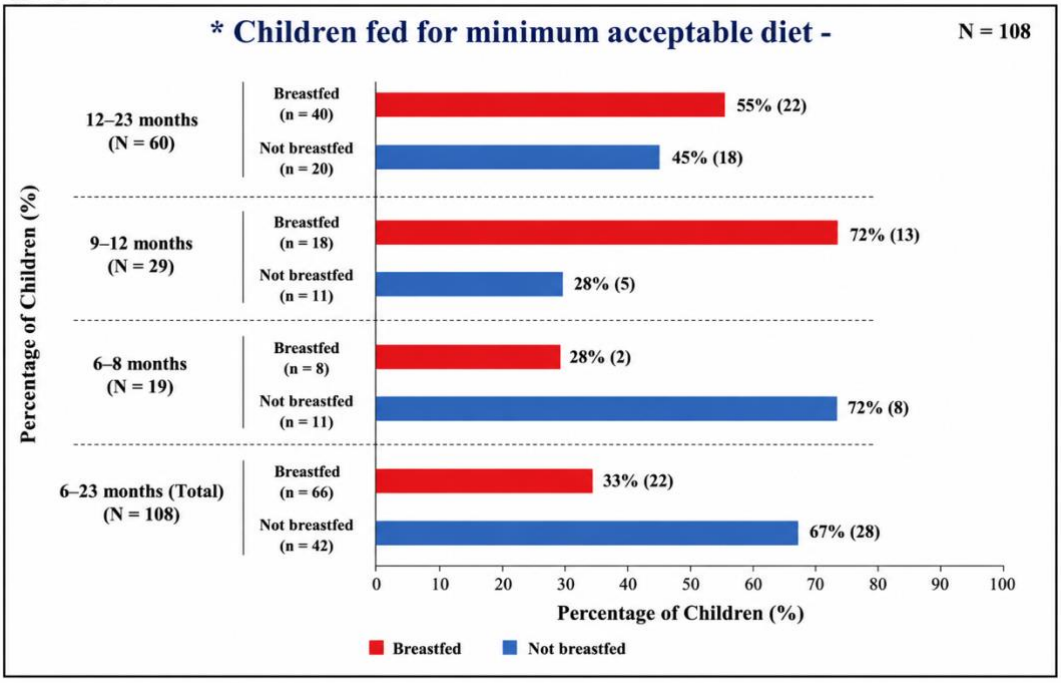
In above **Figure 4.5**, the reasons for inadequate frequency of complementary feeding among children aged 6–23 months (N=36). The most common reason was lack of knowledge regarding complementary feeding practices, reported by 61% (22) of the respondents. This was followed by child reluctance to eat, reported by 25% (9) of the mothers, and limited access to food, reported by 17% (6). Cultural beliefs and the perception that breast milk alone was sufficient were each reported by 6% (2) of the respondents, while lack of time to prepare food was reported by 3% (1). These findings indicate that inadequate knowledge was the major barrier to appropriate complementary feeding practices.

* Children fed for minimum acceptable diet -

Figure 4.7 shows among breastfed and non-breastfed children across several age groups the percentage of those getting the least recommended diet. Among breastfed children aged 6–8 months (n=8), 28% (2) met the minimum acceptable diet, while among those aged 9–12 months (n=18), 72% (13) met the minimum acceptable diet. Among the 12–23 month age group (n=40), 55% (22) of breastfed kids satisfied the least acceptable diet. Among breastfed infants (n=66), 33% (22) satisfied the minimal acceptable diet; 67% (44) did not satisfy the advised nutritional need.

Among the 11 non-breastfed children between the ages of 6 and 8 months, 72%—that is 8—met the basic minimum acceptable diet. Likewise, 28% (5) of non-breastfed children between the ages of 9 and 12 months (n=11) and 45% (18) of those between the ages of 12 and 23 months (n=20) satisfied the minimum acceptable diet. Among non-breastfed children (n=42), 67% (28) satisfied the least appropriate diet and 33% (14) did not meet the advised dietary requirement overall.

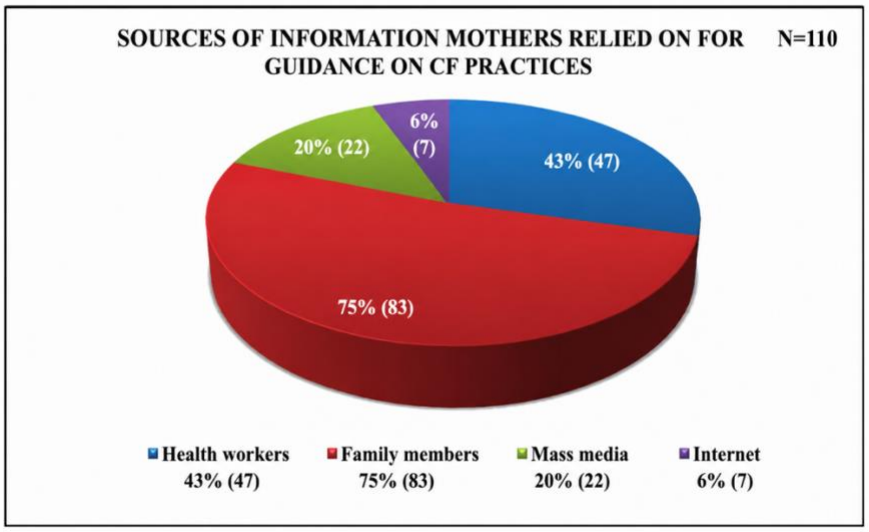
FIGURE 4.7



* Sources of information mothers relied upon for guidance -

Figure 4.8 depicts the sources of information mothers relied upon for guidance on complementary feeding practices. Most mothers obtained information from family members [75% (n=83)], followed by health workers [43% (n=47)]. Mass media was reported as a source by 20% (n=22) of mothers, while only 6% (n=7) relied on internet sources. Among those receiving information from health workers, 87% (n=41) reported Anganwadi workers and 13% (n=6) reported doctors as their source of information.

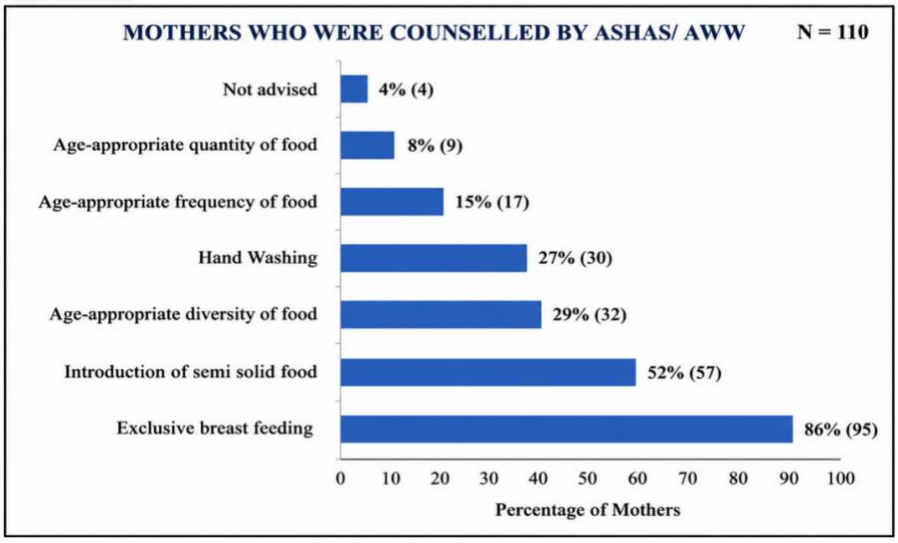
FIGURE 4.8



* Mothers who were counselled by ASHAS/ AWW -

Figure 4.9 shows that most mothers received counselling on exclusive breastfeeding, 86% (95), from ASHAs/AWWs. Half of the mothers received counselling on the introduction of complementary feeding after six months, 50% (55). Counselling on dietary diversity, handwashing, age-appropriate feeding frequency, and food quantity was received by 29% (32), 27% (30), 15% (17), and 8% (9) of mothers, respectively. Only 4% (4) reported not receiving any counselling.

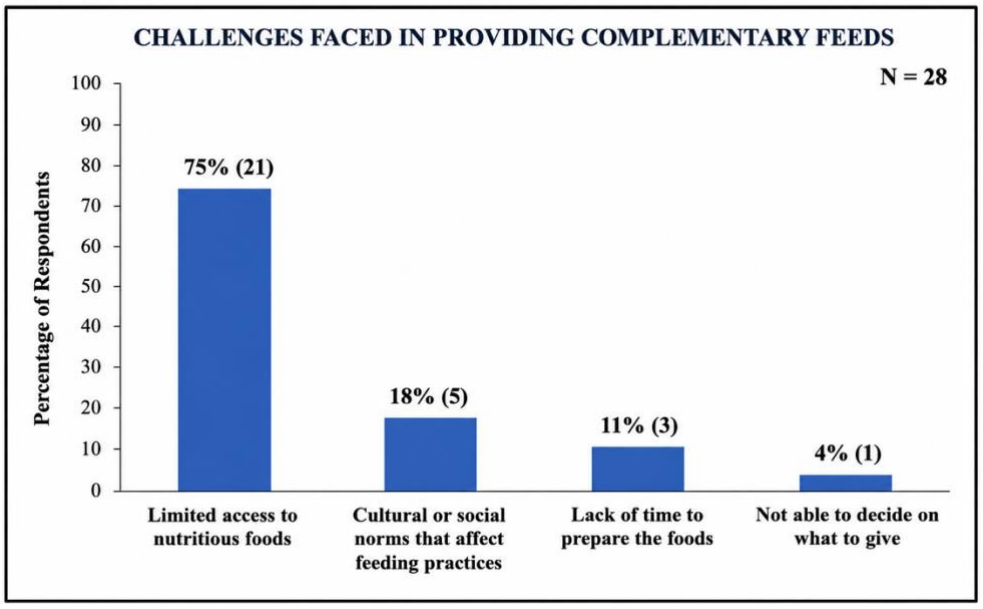
FIGURE 4.9



* Challenges faced in providing complementary feed -

Figure 4.10 depicts, the challenges faced by mothers in providing complementary feeds to their children. Among the 28 mothers who reported difficulties, the most common challenge was limited access to nutritious foods, reported by 75% (21 mothers). Cultural or social norms affecting feeding practices were reported by 18% (5 mothers), while 11% (3 mothers) cited lack of time for food preparation as a barrier. Additionally, 4% (1 mother) reported difficulty in deciding what foods should be provided to their child. The findings indicate that limited access to nutritious foods was the predominant challenge affecting appropriate complementary feeding practices among the study participants.

FIGURE 4.10



B: Factors Associated With Complementary Feeding Practices

A descriptive bivariate analysis utilizing the Chi-square test was conducted to examine how certain variables - such as gender, education, caste, family type, financial status, etc - are associated with complementary feeding practices. The results are as follows:

TABLE 4.4

Variables	Categories	Timely initiation (6 months) n (%)	Late Initiation (> 6 months) n (%)	Early / No Initiation n (%)	Adequate Meal Frequency n (%)	Inadequate Meal Frequency n (%)	p-value
*** Gender of the Child (N=110)**	Male (n=65)	_	_		47 (72%)	18 (28%)	0.06
	Female (n=45)				25 (56%)	20 (44%)	
*** Education of the Mother (N=110)**	No formal education (n=4)	2 (50%)	2 (50%)	0 (0%)	_	_	0.03
	Primary education (n=1)	0 (0%)	1 (100%)	0 (0%)	_	_	
	Secondary education (n=27)	9 (33%)	18 (67%)	0 (0%)	_	_	
	Higher Secondary (n=31)	14 (45%)	16 (52%)	1 (3%)	_	_	
	Graduate and above (n=47)	28 (60%)	19 (40%)	0 (0%)	_	_	
*** Caste (N=110)**	General (n=22)	12 (55%)	10 (45%)	0 (0%)	_	_	0.08
	OBC (n=57)	27 (47%)	30 (53%)	0 (0%)	_	_	
	SC/ST (n=31)	3 (10%)	15 (48%)	13 (42%)	_	_	
*** Type of Family Setup (N=110)**	Extended family (n=57)	_	_	_	38 (67%)	19 (33%)	0.07
	Joint family (n=46)	_	_	_	28 (61%)	18 (39%)	
	Nuclear family (n=7)	_	_	_	6 (86%)	1 (14%)	
*** Monthly Family Income (N=110)**	< Rs. 10000 (n=15)	_	_	_	4 (27%)	11 (73%)	0.2
	Rs. 10000-40000 (n=75)	_	_	_	35 (47%)	40 (53%)	
	Rs. 40000-250000 (n=20)	_	_	_	11 (55%)	9 (45%)	

Table 4.4 presents, with row percentages computed inside each subgroup, the distribution of timely starting of complementary feeding, late initiation, early/no initiation, and sufficient meal frequency across chosen socioeconomic factors. While gender of the child, caste, family type, and monthly family income did not show statistically significant relationships ($p > 0.05$), maternal education showed a statistically significant link with complementary feeding practices ($p = 0.03$).

Among mothers lacking formal education (n=4), 50% started complementary feeding at six months that is, on time while 50% said they had postponed beginning. Among mother with only a basic education (n=1), none started complementary feeding at six months; instead, 100% said they had postponed commencement. Among 33% of mothers with secondary education (n=27), 45% with higher secondary education (n=31), and 60% among graduates and above (n=47) timely starting was noted. Among 67%, 52%, and 40% of mothers with secondary, higher secondary, and graduate-level education, respectively, delayed initiation was noted. These results point to progressively better timely starting of complementary feeding linked to higher mother education.

Regarding caste, timely beginning of supplementary feeding was noted among 55% of respondents from the General group (n=22), 47% from Other Backward Classes (OBC) (n=57), and 10% from SC/ST communities (n=31). Among 45% of General category respondents, 53% of OBC respondents, and 48% of SC/ST respondents, delayed initiation was noted. Significantly, early or no beginning of complementary feeding was stated by 42% of SC/ST people. The link between caste and commencement of complementary feeding, however, was not statistically significant ($p = 0.08$).

Regarding gender, 72% of male children (n=65) and 56% of female children (n=45) reported enough meal frequency; 28% and 44% of male and female children, respectively, had insufficient meal frequency. Though boys seemed to get enough meals more often than girls, the link was not statistically significant ($p = 0.06$). Monthly household income was evaluated against sufficient meal frequency. For children from families with a monthly income under Rs. 10,000 (n=15), 27% reached an acceptable meal frequency; 47% from those with an income between Rs. 10,000 and Rs. 40,000 (n=75); and 55% from those with an income between Rs. 40,000 and Rs. 2,50,000 (n=20). Still, the correlation between monthly family income and meal frequency was not statistically significant ($p = 0.20$).

All things considered, only one element, maternal education, was clearly connected with complementary feeding techniques. The current study found no statistically significant correlations for gender, caste, household form, and monthly household income.

CHAPTER V

DISCUSSION

5.1 SUMMARY OF KEY FINDINGS

Complementary feeding habits among kids between 6 and 23 months of age going to particular metropolitan Anganwadi Centers in Delhi were evaluated in this study. Though breastfeeding indicators were quite good, the results showed that complementary feeding practices were still inadequate in several key areas.

Almost half of the moms started complementary feeding at the suggested age of six months; a large percentage started complement food either earlier or later than suggested. Most mothers said they exclusively breastfed for six months, but few started breastfeeding right after their baby was born.

The study also found that whereas most children satisfied the Minimum Meal Frequency (MMF) requirements, less children met Minimum Dietary Diversity (MDD), and just about one-third met the Minimum Acceptable Diet (MAD) indicator. These results suggest that meal frequency was usually better maintained than dietary quality and diversity.

Appropriate complementary feeding patterns were found to be positively correlated with maternal education, family income, and counselling exposure. Higher educated and better economic status moms were more inclined to start supplemental feeding on time and offer a varied diet. The study also found a number of obstacles impacting feeding behaviours: lack of knowledge about complementary feeding, financial restrictions limiting food options, erroneous beliefs about breast milk sufficiency, and little advice on dietary variety and meal quantity.

5.2 COMPARISON WITH PREVIOUS STUDIES

The results of the current study are usually in line with those of earlier studies carried out in India that have noted ongoing gaps in complementary feeding practices despite advancements in breastfeeding indicators.

The frequency of timely initiation of complementary feeding noted in this study was close to results from urban slum populations in Pune, where delayed initiation and wrong feeding practices

were also common among kids aged 6–24 months (8). Though access to health services and nutrition programmes (16) was available, Sankaran et al. discovered that many homes in Uttar Pradesh fell short of WHO-recommended supplementary feeding guidelines.

Consistent with national statistics showing that only a small percentage of Indian children get appropriately varied meals (13,18), the percentage of children reaching Minimum Dietary Diversity in the current study remained modest. Bhati et al. found that socioeconomic level and mother education had a major impact on food variety among newborns 6–23 months, which is quite consistent with the present study (12). Similarly, Jain et al. found that greater maternal education and better knowledge corresponded with better complementary feeding patterns and food diversity among young children in Central India (15).

Though meal frequency could be acceptable, nutritional diversity always lags behind in studies done in metropolitan low-income environments and analyses based on NFHS-based low prevalence of Minimum Acceptable Diet (13,20). Emphasizing the need of both dietary quality and feeding frequency, Solanki et al. found comparable results noting that youngsters satisfying MDD and MMF indicators showed improved nutritional results (14).

The obstacles discovered in this study—especially lack of maternal knowledge, insufficient counselling, and financial limitations—have also been noted in several Indian studies (8, 15, 16). Studies on urban slum communities reveal that moms usually lack knowledge about age-appropriate complementary feeding, which causes delayed introduction, sporadic meals, and bad dietary variety (8).

The results could diverge somewhat from those of research carried out in rural areas where organized nutrition therapy initiatives and community-based interventions have shown more development in feeding habits (7,9). The particular difficulties experienced by urban low-income groups—including population density, increasing food prices, migration, sporadic employment, and restricted availability to reasonably priced healthy foods—may help to explain the somewhat lower dietary variety seen in this study. Changing urban food surroundings marked by growing availability of convenience and processed meals can also affect young children's nutrition quality and feeding choices.

5.3 LIMITATIONS OF THE STUDY

Certain limitations should be considered while interpreting the findings of this study.
First, the cross-sectional design limits the ability to establish causal relationships between socio-demographic factors and complementary feeding practices. The associations identified represent correlations rather than definitive cause-and-effect relationships.

Second, the study relied on self-reported information provided by mothers, which may be subject to recall bias, particularly regarding breastfeeding history, timing of complementary feeding initiation, and dietary intake. Social desirability bias may also have influenced some responses, leading mothers to report practices perceived as favourable.

Third, the study was conducted among mothers attending selected urban Anganwadi Centres in specific low-income localities of Delhi. Therefore, the findings may not be generalizable to all urban populations in Delhi or other metropolitan settings with different socioeconomic and cultural characteristics.

Finally, although the sample size was adequate for the objectives of the study, a larger sample covering a wider geographic area could have improved representativeness and provided greater statistical power to detect associations between feeding practices and socio-demographic factors.
Despite these limitations, the study provides valuable evidence regarding complementary feeding practices, associated factors, and perceived barriers among children attending urban Anganwadi Centres in Delhi and offers important insights for strengthening nutrition counselling and community-based interventions.

CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

This study examined the feeding habits of youngsters between the ages of six and twenty-three months at chosen Anganwadi centres in Delhi, as well as the elements that influenced these practices. The study yielded significant insights that helped to illuminate the complexities of supplementary feeding as well as its determinants. The absence of knowledge regarding proper supplementary feeding techniques was a major source of anxiety.

In terms of feed introduction timing, inadequate frequency, lower nutritional diversification, and inadequate feed amount, complementary feeding techniques were demonstrated to be subpar. Income, employment, and education were found to be obstacles to proper diet as well. This 6–23-month window is essential since moms' milk alone falls short in fulfilling the nutritional needs of the developing baby. Inadequate supplementary feeding methods significantly affect the health and development of infants, possibly causing short and long-term effects on the child's general well-being (8).

Therefore, in order to narrow the gap between the established IYCF recommendations and contemporary continuous practices to lower malnutrition, mortality, and morbidity related with undernutrition and ensure healthy development for the newborns, educating mothers on proper complementary feeding techniques is essential.

6.2. RECOMMENDATIONS

Based on the results of the study on current complementary feeding practices and variables influencing infants and young children aged 6–23 months, the main gap discovered was a lack of understanding about ideal complementary feeding methods; thus, the following recommendations are presented:

1. Enhance consciousness, training, and maternal education: Create and put into action thorough training programs geared at mothers, stressing the need of ideal complementary feeding practices.

- Promote regular and efficient communication among healthcare professionals and moms to handle their worries and offer continuous assistance (7).

- Every home visit by ASHAs/AWW includes a demonstration of complementary feeding techniques.
- Training and demonstration on effective complementary practices including dietary diversity, frequency, and appropriate quantity of feeds on Village Health Sanitation and Nutrition Days, Annaprasan days, immunisation days etc.
- Developing awareness via a variety of BCC materials, such as hoardings, posters, and folk dance banners, at general locations with the assistance of all the convergence agencies including ICDS, Panchayati Raj, NHM, and others.
- Simplify pamphlets for mothers with infants ranging in age from six to twenty-three months by highlighting the variety of foods and feeding frequency that should be offered in their native tongues.
- Counselling on use of the enriched meals "Take Home Ration" supplied under the ICDS program through the Anganwadi's to make complementary feeds as it has a higher nutritional value.

2. Strengthen Healthcare Provider Guidance: Improve healthcare professionals' training, including doctors, nurses, and community health workers, especially ASHAs and Anganwadi workers, to offer precise and consistent advice on complementary feeding by ensuring they are current with the most recent IYCF recommendations provided by MoHWFW and WHO on infant nutrition (7,21).

3. Working with community leaders and local groups to spread knowledge and encourage best complementary feeding techniques inside the cultural milieu enables the creation of culturally sensitive treatments that respect the customs, beliefs, and preferences of many groups.

4. Periodically review and assess supplementary feeding initiatives and programs to determine their influence and spot areas for enhancement (5,18).

5. Sensitization, Capacity Building tracking and evaluation of the shifts among the target groups and stakeholders

6. Policymakers, healthcare professionals, and community stakeholders can collaborate to improve complementary feeding practices and eventually improve the nutrition and health outcomes of infants aged 6–23 months by means of these recommendations (8,16).

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ANNEXURES I

SEMI STRUCTURED SCHEDULE

Section A: Identification Details

1. Name of Anganwadi Centre: _____
2. Respondent (Mother) ID: _____
3. Date of Interview: _____

Section B: Socio-Demographic Details

4. Age of mother (in completed years): ___

5. Mother's education level: ☐ No formal education
   ☐ Primary (1–5 years)
   ☐ Secondary (6–10 years)
   ☐ Higher secondary (11–12 years)
   ☐ Graduate & above

6. Mother's occupation: ☐ Homemaker
   ☐ Daily wage labour
   ☐ Salaried job
   ☐ Self-employed
   ☐ Other (specify): _____

7. Monthly family income: ☐ < ₹10,000
   ☐ ₹10,000–20,000
   ☐ ₹20,001–40,000
   ☐ > ₹40,000

8. Type of family: ☐ Nuclear
   ☐ Joint
   ☐ Extended

9. Total household size (number of members living together): ___

10. Total number of children under 5 years in the household: ___

11. Birth order of the index child:
    ☐ First

☐ Second
☐ Third or more

12. Age gap between index child and next older sibling (in months/years): ___

13. Primary decision-maker for child feeding in the household:
☐ Mother
☐ Father
☐ Grandmother
☐ Other family member

14. Access to government nutrition services (Anganwadi / ICDS benefits):
☐ Yes
☐ No

Section C: Child Details

16. Age of child:
○ 6–8 months
○ 9–11 months
○ 12–23 months

17. Sex of child: Male / Female
18. Birth order: First/ Second/ Third or more
19. Birth weight (if known): ___ kg

Section D: Complementary Feeding Practices (24-Hour Recall Based)

20.. At what age was complementary feeding started?
☐ Before 6 months
☐ At 6 months
☐ After 6 months

21. How many times did the child receive **solid/semi-solid/soft foods** yesterday?
☐ <2 times
☐ 2–3 times
☐ ≥4 times

22. Minimum Dietary Diversity (WHO – 8 Food Groups)

Did the child consume the following yesterday? (Tick all)
☐ Breast milk
☐ Grains, roots and tubers

☐ Pulses, beans, lentils, nuts
☐ Dairy products (milk, curd, paneer)
☐ Flesh foods (meat, fish, chicken)
☐ Eggs
☐ Vitamin A rich fruits and vegetables
☐ Other fruits and vegetables

23. Did the child consume any **packaged/commercial baby food?**
☐ Yes ☐ No

Section E: Feeding Behavior

24. Usual consistency of complementary food:
☐ Watery
☐ Semi-solid
☐ Solid

25. Person mainly responsible for feeding the child:
☐ Mother
☐ Grandmother
☐ Father
☐ Sibling
☐ Others (specify): _____

26. Does the child eat from a separate bowl/plate?
☐ Yes ☐ No

27. Is the child encouraged or force-fed?

☐ Encouraged
☐ Force-fed
☐ Self-fed

Section F: Knowledge & Counselling

28. Have you received counseling on complementary feeding from ASHA/AWW/doctor?
☐ Yes
☐ No

29. Source of information on feeding:
☐ Health worker (ASHA/AWW/ANM/Doctor)

☐ Family members
☐ Media/Internet
☐ Friends/Neighbours

30. What key advice did you receive?

Section G: Barriers

31. Do you face difficulty in providing complementary food?
☐ Lack of knowledge
☐ Lack of time
☐ Food affordability issues
☐ Child refuses to eat
☐ Cultural or traditional beliefs
☐ Limited food availability
☐ Work burden

32. Please describe any other difficulties you face:

33. How do you manage when the child refuses food?

Section H: Perception

34. Do you think complementary feeding improves child growth?
☐ Yes
☐ No
☐ Not sure

35. What foods do you believe are most important for child growth?

36. Do family members influence feeding decisions? How?

37. What changes would help you feed your child better?

Research Study in Nutrition & Child Health

PARTICIPANT INFORMATION SHEET (PIS)

1. Name of Project and Agency

Project Title: A Study on Factors Affecting Complementary Feeding Practices Among Infants and Young Children (6–23 Months) Attending Urban Anganwadi Centers

Conducted by: MedTourEasy Pvt. Ltd., New Delhi

Principal Investigator: Ankit Hasija

Affiliated Institution: MedTourEasy Research Division

Study Site: Selected Urban Anganwadi Centres, Delhi NCR

Study Period: April 2026 – June 2026

Ethics Reference No.: MTE/IRB/2026/004

2. Study Title and Purpose of the Study

The purpose of this study is to assess complementary feeding practices among children aged 6–23 months and identify socio-demographic and maternal factors influencing these practices. The findings will inform evidence-based public health interventions aimed at improving child nutritional outcomes in urban settings.

3. Research Description

This is a community-based cross-sectional study conducted among mothers of children aged 6–23 months attending selected urban Anganwadi Centres. Data will be collected using a pre-tested, structured interview schedule. The study involves no invasive procedures and poses minimal risk to participants.

4. Procedure of the Study

Participants will be interviewed by a trained research assistant using a structured questionnaire covering maternal knowledge, dietary practices, and socio-demographic information. The interview will take approximately 15–20 minutes. Participation may occur at the Anganwadi centre or at a convenient location of the participant's choosing. No clinical or diagnostic procedures are involved.

5. Participant's Responsibility

Participants are requested to provide honest and complete responses to all applicable questions. Participants may seek clarification from the interviewer at any time and are encouraged to ask questions if any aspect of the study is unclear.

6. Possible Risks / Discomforts

There are no significant physical, psychological, or social risks associated with participation in this study. Some questions may relate to personal dietary habits; participants may decline to answer any question they find uncomfortable, without any consequence.

7. Potential Benefits

There is no direct financial benefit to participants. However, participants may receive brief, targeted counselling on complementary feeding practices from the research team. The study findings will contribute to improved nutritional policies and programs for infants and young children in urban India.

8. Confidentiality of Information

All information provided will be strictly confidential. Data will be stored securely and accessed only by authorised members of the research team. Participants will be identified by a unique numeric code; no names will appear in any published report or presentation. Data will be retained for a period of five years in accordance with institutional research guidelines and thereafter destroyed securely.

9. Voluntary Participation & Right to Withdrawal

Participation in this study is entirely voluntary. You are free to withdraw at any stage of the study, without providing a reason, and without any penalty or impact on the services you receive at the Anganwadi centre. Withdrawal will result in the destruction of your data upon request.

10. Cost of Participation & Compensation

There is no cost to participants for taking part in this study. No monetary compensation will be provided. Participants will not be charged for any counselling provided as part of the study.

11. Contact Details of Investigator

Investigator: _____

Phone: _____

Email: _____

INFORMED CONSENT FORM (ICF)

I, the undersigned, confirm the following:

I have been provided with a copy of the Participant Information Sheet and have read it carefully.

The study, its objectives, procedures, and my rights as a participant have been explained to me clearly.

I have had adequate time to consider my participation and to ask questions, all of which have been answered to my satisfaction.

The explanation was provided in a language I understand.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty.

I understand that my personal information will remain confidential and will not be shared without my consent, except as required by law.

I agree to voluntarily participate in this research study.

PARTICIPANT DETAILS

Participant Name: _____ **Date:** _____

Signature / Thumb Impression: _____ **Place:** _____

INVESTIGATOR DECLARATION

I confirm that I have fully explained the nature, purpose, and procedures of this study to the participant named above, and that the participant has provided informed consent voluntarily.

Investigator Name: _____ **Date:** _____

Signature: _____ **Place:** _____

WITNESS (IF APPLICABLE)

Witness Name: _____ **Date:** _____

Signature: _____ **Relationship to Participant:** _____

Laxmi Singh DIS

by Laxmi Singh Laxmi Singh

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