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ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE ON COMPLEMENTARY FEEDING AMONG MOTHERS OF THE CHILDREN AGED 6 TO 24 MONTHS

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Abstract:

Background: *Complementary feeding is the process of providing additional foods and liquids alongside breast milk when it alone no longer meets the nutritional requirements of infants, typically from 6–24 months of age. Proper knowledge, attitude, and practices (KAP) of mothers regarding complementary feeding are crucial for optimal child growth and development.*

Objectives: *The study aimed to assess mothers' knowledge, attitude, and practices related to complementary feeding, evaluate feeding practices in terms of timely initiation, quality, quantity, hygiene, and active feeding techniques, and identify factors influencing inadequate complementary feeding.*

Methods: *A prospective observational study was conducted on 100 mother–child pairs aged 6–24 months. Demographic details, feeding practices, and KAP were assessed using a validated questionnaire before and one month after counseling. Factors affecting complementary feeding practices were also analyzed.*

Results: *Among the children, 67% were aged 12–24 months, and 52% were male. The majority of mothers were aged 26–30 years (47%) and resided in urban areas (81%). Most mothers had one child (45%) and delivered in public hospitals (76%). Breastfeeding was practiced by 72% of mothers, while 28% used bottle feeding. Sources of knowledge on complementary feeding included relatives (54%) and health workers (45%). Initiation of complementary feeding at six months was observed in 52% of children. Significant associations were found between the initiation of complementary feeding and maternal education ($p=0.0478$) and socioeconomic status ($p=0.0356$). After counseling, the proportion of mothers with good knowledge, attitude, and practices increased significantly: knowledge (99%), attitude (100%), and practices (100%).*

Conclusion: *Maternal education and socioeconomic status play a key role in complementary feeding practices. Counseling significantly improved mothers' KAP regarding complementary feeding, emphasizing the need for structured guidance during antenatal, postnatal, and immunization visits to ensure optimal child nutrition and development.*

Keywords: *Complementary feeding, Mother-child pairs, Knowledge, Attitude, Practices, Counseling, Infant nutrition.*

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INTRODUCTION:

Malnutrition continues to be a major public health concern globally, particularly affecting infants and young children. More than half of all childhood deaths are either directly or indirectly attributed to malnutrition . Malnutrition refers to any imbalance in nutrient intake, which may include deficiencies, excesses, or disproportionate consumption of energy and nutrients. It encompasses two major categories: **undernutrition**, which includes wasting, stunting, and micronutrient deficiencies, and **overnutrition**, which can result in overweight and obesity .

The critical window for addressing childhood malnutrition lies in the first two years of life, a period often referred to as the **"window of opportunity"**, during which proper nutrition can have profound effects on growth, cognitive development, and long-term health outcomes. When breast milk alone is no longer sufficient to meet a child's nutritional demands, usually around six months of age, **complementary feeding** must be initiated. Complementary feeding involves the gradual introduction of age-appropriate foods alongside continued breastfeeding. Infants and young children require the support of adults who not only select and provide adequate foods but also encourage children to consume them in sufficient quantity and quality .

Global Guidelines for Infant Feeding

The **World Health Organization (WHO)** and UNICEF have established global guidelines to optimize infant feeding practices:

- **Initiate breastfeeding** within one hour of birth.
- **Exclusive breastfeeding** for the first six months of life, providing all necessary nutrients.
- **Introduction of appropriate complementary foods** at six months of age while continuing breastfeeding up to at least two years .

These recommendations are designed to ensure that children receive adequate nutrition during this critical period of rapid growth and development.

Components of Proper Complementary Feeding

Proper complementary feeding is characterized by three essential components:

- **Adequacy:** Foods must provide sufficient calories, protein, and micronutrients to meet the nutritional demands of a growing child.
- **Timeliness:** Complementary foods should be introduced when the child's energy and nutrient requirements exceed what breast milk alone can provide.
- **Safe feeding:** Foods should be given in accordance with the child's appetite and developmental stage, prepared hygienically, and fed using safe utensils such as spoons or fingers rather than bottles. Active encouragement during feeding is necessary to promote self-feeding skills appropriate for age .

Definition of Complementary Feeding

According to WHO, complementary feeding is **"the process when breast milk alone is no longer sufficient to meet the nutritional requirements, and other foods and liquids are needed alongside breast milk from 6–24 months of age"** .

Importance of Exclusive Breastfeeding Followed by Complementary Feeding

Exclusive breastfeeding for the first six months is critical for optimal infant growth and development. Breast milk provides all essential nutrients, immunological protection, and promotes maternal health benefits. After six months, the child's nutritional requirements increase due to growth and higher activity levels, necessitating complementary foods alongside breast milk WHO/UNICEF defines exclusive breastfeeding as feeding an infant only breast milk, with the exception of oral rehydration solutions, vitamins, minerals, or prescribed medicines . Breast milk contains a balanced mix of macronutrients (fat, carbohydrates, protein) and micronutrients (vitamins, minerals) essential for infant development .

Benefits of Breastfeeding for Infants

1. **Optimal nutrition:** Breast milk provides all essential nutrients required in the first six months. Colostrum, the initial thick yellowish milk, is rich in protein and antibodies.
2. **Immunity:** Breast milk contains immunoglobulins, particularly IgA, which protect against infections such as diarrhea, respiratory infections, and pneumonia.
3. **Reduced childhood illness:** Breastfeeding decreases the risk of conditions like otitis media, gastrointestinal infections, sudden infant death syndrome (SIDS), allergies, diabetes, and leukemia.
4. **Healthy growth and weight:** Breastfed infants have lower risks of obesity later in life due to better regulation of energy intake and higher leptin levels.

5. **Cognitive development:** Breastfeeding supports brain development, improving IQ outcomes.
6. **Maternal health benefits:** Lactation increases oxytocin levels, promotes uterine contraction, reduces postpartum bleeding, delays ovulation, and reduces the risk of breast and ovarian cancers, hypertension, type 2 diabetes, and arthritis .
7. **Economic and time-saving advantages:** Breastfeeding eliminates the cost of formula, preparation, and sterilization, and breast milk is always ready at the right temperature.

Complementary Feeding

The ideal age to begin weaning is **six months**, as this is when breast milk alone can no longer meet a child's nutritional needs, and the infant's oral and motor skills are sufficiently developed for chewing and swallowing solid foods . Rapid growth during infancy requires increased energy, protein, and micronutrient intake, making complementary feeding crucial for preventing malnutrition .

Importance in Growth and Development

Infants experience remarkable growth in the first year, often tripling in weight and increasing in length by approximately 9.5 inches. Organ development, including the brain and nervous system, occurs rapidly during this period. Inadequate nutrition, inappropriate feeding practices, and frequent infections can impede growth and increase the risk of stunting, wasting, and micronutrient deficiencies. Complementary feeding interventions are essential to address both under nutrition and emerging issues of overweight and obesity due to excessive or processed foods.

First Foods for Infants

The first complementary foods should be based on **locally available cereals**, such as rice, wheat, ragi, or millet, prepared as thin porridge mixed with milk or water. Small amounts of fats (ghee or oil) and sweeteners (jaggery) can enhance calorie density. As the child grows, consistency can be thickened, and mashed fruits like bananas, papayas, and mangos may be introduced

Gradual Introduction of Foods

Introducing new foods gradually allows the infant's digestive system to adjust and helps identify any food allergies. Traditional infant foods such as khichadi, dal, upma, and idly can be served once cereal porridge is tolerated. Homemade instant foods, like the Uggu multigrain cereal (combining roasted cereals, pulses, and groundnuts), are also suitable for infants up to 9 months, later transitioning to chopped family foods .

Do's and Don'ts in Early Complementary Feeding

Do's:

- Provide water in small sips.
- Use homemade cereals and foods.
- Follow preparation guidelines carefully.

Don'ts:

- Avoid processed and sugary foods, chocolates, and snacks.
- Avoid diluted cow's milk .

Quality, Frequency, and Texture of Complementary Foods

Age	Texture	Frequency	Average Amount
6–8 months	Mashed foods, thick porridge	2–3 meals/day with continued breastfeeding	2–3 tbsp
9–11 months	Mashed/chopped foods, finger foods	3 meals/day + 1–2 snacks	1/2 cup (125 mL)
12–24 months	Family foods, mashed/chopped	3–4 meals/day + 1–2 snacks	3/4 – 1 cup (250 mL)

Periodical Breastfeeding
Breastfeeding should continue for at least **two years** alongside complementary foods. It ensures the infant continues to receive energy, high-quality protein, vitamins, and minerals while maintaining immune protection. Night-time breastfeeding also supports sustained lactation .

Early and Late Introduction of Complementary Foods
Introducing solid foods either **too early** or **too late** can impact long-term health. Early weaning may increase the risk of chronic conditions like eczema, Type 1 diabetes, and obesity. Late weaning can lead to deficiencies in iron, zinc, protein, vitamins B and D, and may cause growth retardation and feeding difficulties .

Complementary Feeding During Illness
During illness, infants should be fed small, frequent meals with nutrient-rich foods while maintaining breastfeeding. Recovery requires additional food and patience to restore energy and growth .

Monitoring and Promoting Growth
Growth monitoring involves monthly weighing, charting growth, and providing guidance to mothers on increasing nutrient intake for malnourished children. Community engagement is critical to ensure utilization of dietary and health services .

WHO Guiding Principles for Complementary Feeding

1. Exclusive breastfeeding for six months; introduce complementary foods while continuing breastfeeding.
2. Frequent mechanical care for breastfeeding up to 2 years.
3. Responsive feeding and psychosocial care during meals.
4. Safe preparation and storage of complementary foods.
5. Gradually increase food quantity with age.
6. Adjust food consistency and diversity with child's developmental stage.
7. Appropriate energy density and meal frequency according to age.
8. Nutrient-rich complementary foods, including animal products and fruits/vegetables.
9. Use fortified products or supplements as needed for mother and infant.
10. Maintain proper feeding during and after illness .

Childhood Malnutrition in India

India has a significant burden of childhood malnutrition, with 46.6 million stunted children, representing one-third of the global total (Global Nutrition Report, 2018). Undernutrition contributes to over half of under-five deaths. SDG 2 aims to eradicate hunger, achieve food security, improve nutrition, and promote sustainable agriculture, targeting stunting and wasting in children under five by 2025 [2].

Factors Affecting Complementary Feeding
Key factors include socio-economic status, maternal education, place of residence, cultural practices, and length of breastfeeding:

- **Socioeconomic status:** Poverty and food insecurity affect access to nutritious foods .
- **Maternal education:** Knowledge of nutrition influences feeding practices and infant growth .
- **Socio-cultural factors:** Malnutrition in mothers often perpetuates malnutrition in children .
- **Maternal health:** Short stature, advanced age, infections, poor prenatal care, and exposure to tobacco are risk factors .
- **Breastfeeding practices:** Inadequate or improper breastfeeding underpins childhood malnutrition .

METHODOLOGY:

1 Study Design
The present study was designed as a **prospective observational study** to assess the knowledge, attitude, and practices (KAP) of mothers regarding complementary feeding for children aged 6–24 months.

2 Study Site

The study was conducted at the **Department of Pediatrics, King George Hospital (KGH), Visakhapatnam, Andhra Pradesh**, which is a 500-bedded tertiary care facility. Both **in-patient and out-patient units** of the department were included for participant recruitment.

Study Period and Duration
The study was conducted over a period of **six months**.

3 Study Population
The study population consisted of **107 children (male and female) aged 6–24 months** and their mothers. Children attending the hospital for **vaccinations, general check-ups, or minor**

illnesses (such as cough, cold, and fever) were considered for inclusion.

4 Selection of Subjects and Recruitment Procedure
Participants were selected from the Department of Pediatrics based on specific **inclusion and exclusion criteria**. Mothers accompanying eligible children were approached for participation after explaining the study objectives.

5 Inclusion Criteria
- Mothers with children aged **6–24 months**.
- Children who had already **initiated complementary feeding**.
- Mothers capable of understanding and responding to questions, and **willing to participate** in the study.

6 Exclusion Criteria
- Children **below 6 months** or **above 24 months** of age.
- Malnourished children.
- Children with **major medical conditions**.
- Children accompanied by **family members other than the mother**.
- Mothers unwilling to participate or unable to answer questions.

7 Dropouts
Out of the 107 mother-child pairs recruited, **7 participants were excluded**:
- 4 due to incomplete data or mothers leaving prematurely.
- 2 children with a known **atrial septal defect** (congenital heart defect).
- 1 child with a history of **febrile seizures**.

The final analysis was performed on **100 subjects**.

8 MATERIALS AND METHODS:

8.1 Materials
The materials included **patient consent forms, data collection forms, questionnaires, and patient information leaflets**, all designed with guidance from physicians and validated through a pilot study.

8.2 Patient Consent Form
A **consent form** was prepared in four languages (English, Telugu, Hindi, Urdu) to ensure comprehension. The form included:

- Name of the mother
- Study details and ethical considerations
- Signature of the mother and investigator

8.3 Patient Data Collection Form
A structured **data collection form** was prepared in collaboration with a physician, which recorded:

- Demographic details: child's name, age, sex, weight and height with growth percentiles
- Maternal details: name, age, education, family type, marital status, number of children, inter-pregnancy interval, maternal comorbidities
- Child immunization status
- Advice received regarding complementary feeding
- Socio-economic status using the **Modified Kuppuswamy's scale (2016–2017 revision)**

8.4 Pilot Study and Questionnaire
A **pilot study** was conducted on 20 mother-child pairs using a **pre-tested, validated questionnaire** designed from published literature and expert guidance. Modifications were made based on pilot results. The questionnaire assessed **knowledge, attitude, and practices (KAP)** before and after counseling.

8.5 Patient Information Leaflet
A **patient information leaflet** was developed in collaboration with a physician to educate mothers on:
- Importance of complementary feeding
- Appropriate feeding practices, frequency, and quantity
- Active feeding techniques
- Hygiene and safety practices
- Do's and Don'ts

8.6 Methods
Statistical Tools
Data analysis was performed using **Microsoft Excel**, calculating mean, standard deviation, and p-values. The following statistical tests were used:
- **Chi-square test:** To compare observed and expected values and determine associations between categorical variables. A p-value < 0.05 was considered statistically significant [36].
- **Spearman rank correlation coefficient:** To assess the degree and direction of the relationship between two ranked variables [37].

Patient Counseling
All mothers received **individual counseling sessions (5–10 minutes)** in a language they understood (Telugu, Hindi, or English). Counseling focused on:

- Timely initiation of complementary feeding
- Frequency and quantity of food (demonstrated using bowls, spoons, and cups based on WHO guidelines)
- Proper hygiene and safe preparation of foods
- Types of complementary foods suitable for the child's age to prevent malnutrition and promote healthy growth

The counseling session concluded with the distribution of the **patient information leaflet** for reference and reinforcement of the information provided.

RESULTS:

Out of **107 mother-child pairs** recruited, 7 participants were excluded: 4 due to incomplete data or mothers leaving prematurely, 2 children with **atrial septal defect**, and 1 child with **febrile seizures**. Therefore, the final analysis included **100 subjects**.

1 Distribution of Children Based on Age

Age (months)	Number of Subjects	Percentage
6–8	7	7%
9–11	26	26%
12–24	67	67%
Total	100	100%

- The **majority** of children were in the **12–24 months** group (67%), followed by **9–11 months** (26%), and the **least** in **6–8 months** (7%).

2 Distribution of Children Based on Sex

Sex	Number of Subjects	Percentage
Male	52	52%
Female	48	48%
Total	100	100%

- Slightly more children were **male (52%)** than **female (48%)**.

3 Distribution of Mothers Based on Age

Age (years)	Number of Subjects	Percentage
20–25	34	34%
26–30	47	47%
31–35	17	17%
36–40	2	2%
Total	100	100%

- Most mothers were aged **26–30 years (47%)**, while the fewest were **36–40 years (2%)**.

4 Distribution Based on Residency

Residency	Number of Subjects	Percentage
Rural	19	19%
Urban	81	81%
Total	100	100%

- Majority of participants (**81%**) were from **urban areas**.

5 Distribution Based on Family Type

Family Type	Number of Subjects	Percentage
Joint	51	51%
Nuclear	49	49%
Total	100	100%

- Slightly more families were **joint (51%)** compared to **nuclear (49%)**.

6 Marital Life of Parents

Marital Type	Number of Subjects	Percentage
Non-consanguineous	85	85%
Consanguineous	15	15%
Total	100	100%

- Most parents were **non-consanguineous (85%)**.

7 Number of Children Per Mother

Number of Children	Number of Subjects	Percentage
1	45	45%
2	42	42%
3	10	10%
≥3	1	1%
Twins	2	2%
Total	100	100%

- Majority of mothers had **1 child (45%)**, followed by 2 children (42%).

8 Inter-Pregnancy Gap (for mothers with ≥2 children)

Gap (years)	Number of Subjects	Percentage
2–3	35	35%
4–6	13	13%
7–10	5	5%
Total	53	53%

- Most mothers had an **inter-pregnancy gap of 2–3 years (35%)**.

9 Term of Child

Term	Number of Subjects	Percentage
Full-term	98	98%
Pre-term	2	2%
Total	100	100%

- Majority of children were **full-term (98%)**.

10 Place of Delivery

Place of Delivery	Number of Subjects	Percentage
Public Hospital	76	76%
Private Hospital	24	24%
Total	100	100%

- Most deliveries occurred in **public hospitals (76%)**.

11 Type of Delivery

Delivery Type	Number of Subjects	Percentage
Cesarean	79	79%
Vaginal	21	21%
Total	100	100%

- Majority of deliveries were **cesarean (79%)**.

12 Maternal Age During Pregnancy

Age (years)	Number of Subjects	Percentage
16–20	7	7%
21–25	42	42%
26–30	38	38%
31–35	12	12%
36–40	1	1%
Total	100	100%

- Most mothers were aged **21–25 years during pregnancy (42%)**.

13 Advice on Complementary Feeding During Immunization

Advice Received	Number of Subjects	Percentage
Yes	41	41%
No	59	59%
Total	100	100%

- Majority of mothers (**59%**) **did not receive advice** on complementary feeding.

14 Maternal Qualification

Qualification	Number of Subjects	Percentage
School/Intermediate	30	30%
Graduate	53	53%
Postgraduate	8	8%
Professional	0	0%
Illiterate	9	9%
Total	100	100%

- Most mothers were **graduates (53%)**, while 9% were illiterate.

15 Maternal Occupation

Occupation	Number of Subjects	Percentage
Housewife	75	75%
Working	25	25%
Total	100	100%

- Majority were **housewives (75%)**.

16 Socioeconomic Status

SES Category	Number of Subjects	Percentage
Upper Class	5	5%
Upper Middle Class	83	83%
Lower Middle Class	6	6%
Upper Lower Class	4	4%
Lower Class	2	2%
Total	100	100%

- Most subjects belonged to **upper-middle class (83%)**.

17 Type of Feeding

Feeding Type	Number of Subjects	Percentage
Breastfeeding	72	72%
Bottle Feeding	28	28%
Total	100	100%

- Majority of children were **breastfed (72%)**.

18 Age at Initiation of Complementary Feeding

Age Started	Number of Subjects	Percentage
<6 months	10	10%
6 months	52	52%
>6 months	38	38%
Total	100	100%

- Most mothers (**52%**) started complementary feeding at **6 months**.

19 Source of Knowledge on Complementary Feeding

Source	Number of Subjects	Percentage
Relatives	54	54%
Physician/ASHA	45	45%
Social Media	1	1%
Total	100	100%

- Relatives were the **primary source of knowledge (54%)**, followed by **physicians/ASHA workers (45%)**.

20 Usage of Boiled Water for Drinking

Boiled Water Use	Number of Subjects	Percentage
Yes	73	73%
No	15	15%
Sometimes	12	12%
Total	100	100%

- Most mothers (**73%**) preferred using **boiled water**.

21 Initiation of Breastfeeding After Birth

Time of Initiation	Number of Subjects	Percentage
1–2 hours	52	52%
3–8 hours	28	28%
>9 hours to days	20	20%
Total	100	100%

- Most mothers (**52%**) initiated breastfeeding **within 1–2 hours**.

22–24 Knowledge, Attitude, and Practices Before Counseling

Parameter	Good	Average	Poor
Knowledge	44%	52%	4%
Attitude	68%	32%	0%
Practice	61%	39%	0%

- Before counseling, **knowledge and practices were moderate**, whereas **attitude was largely positive**.

25–27 Knowledge, Attitude, and Practices After Counseling

Parameter	Good	Average	Poor
Knowledge	99%	1%	0%
Attitude	100%	0%	0%
Practice	100%	0%	0%

- Post-counseling, almost all mothers demonstrated **good knowledge, attitude, and practices** regarding
- complementary feeding.

DISCUSSION:

The present study aimed to assess mothers' knowledge, attitude, and practices (KAP) related to complementary feeding, evaluate the adequacy of complementary feeding practices—including timely initiation, quality, quantity, hygiene, and active feeding—and identify factors influencing inadequate feeding practices. A prospective observational study was conducted on **100 mother-child pairs** with children aged 6–24 months.

1 Demographic Profile of Study Population

The majority of children (67%) were aged **12–24 months**, while the least number were **6–8 months** (7%). The mean age of children was **14.52 ± 4.93 months**. Of the children, **52% were male** and **48% female**.

Most mothers were aged **26–30 years (47%)**, with the fewest in the **36–40 years** age group (2%), and a mean maternal age of **27.24 ± 3.71 years**. The majority of participants resided in **urban areas (81%)** and the least in **rural areas (19%)**. Regarding family type, **51% belonged to joint families** and **49% to nuclear families**.

2 Number of Children Per Mother

The majority of mothers had **only one child (45%)**, and only one mother had **three or more children**. The mean number of children per mother was **1.67 ± 0.70**. Previous studies by Rao S. et al. and Adhikari N. et al. indicated that birth order is

associated with the practice of complementary feeding at six months.

3 Inter-Pregnancy Gap
Among mothers with two or more children, most had an inter-pregnancy gap of **2–3 years (35%)**, while the least were in the **7–10 years gap (5%)**. The mean inter-pregnancy gap was **3.22 ± 2.07 years**.

4 Place of Delivery
Most deliveries occurred in **public hospitals (76%)**, compared to **private hospitals (24%)**. Rao S. et al. reported that the place of delivery influences complementary feeding practices at six months.

5 Initiation of Breastfeeding
Most mothers (**52%**) initiated breastfeeding within **1–2 hours** of birth. A smaller proportion initiated after **>9 hours up to several days**. Similar findings were reported by Adhikari N. et al., where most mothers breastfed within an hour of delivery.

6 Advice Regarding Complementary Feeding
Most mothers (**59%**) did not receive advice on complementary feeding during immunization, while **41%** received guidance.

7 Breastfeeding vs. Bottle Feeding
The majority of mothers (**72%**) practiced breastfeeding, and **28%** used bottle feeding.

8 Source of Knowledge
Mothers primarily obtained knowledge from **relatives (54%)**, followed by **physicians/ASHA workers (45%)**, and **social media (1%)**.

9 Factors Associated with Initiation of Complementary Feeding
Analysis of factors influencing initiation revealed **significant associations** with:

- **Mother's education** (p = 0.0478)
- **Socioeconomic status** (p = 0.0356)

Other factors—such as maternal age, type of family, occupation, number of children, child's gender, place of delivery, term of child, and advice received—were not significantly associated (p > 0.05).

10 Maternal Qualification
Most mothers were **graduates (53%)**, 35% had completed schooling/intermediate, 8% were postgraduates, and 4% were illiterate. This aligns with Rao S. et al., where 48% of mothers were graduates. Maternal education was significantly associated with complementary feeding practices (p = 0.0478).

11 Socioeconomic Status
The majority of subjects belonged to the **upper-middle class (65%)**, and the fewest to the **upper class (3%)**. Socioeconomic status was significantly associated with initiation of complementary feeding (p = 0.0356), consistent with Rao S. et al.

12 Initiation of Complementary Feeding
Most mothers (**52%**) initiated complementary feeding at **6 months**, while **10%** started earlier (<6 months). The mean age of initiation was **6.48 ± 1.17 months**. Similar observations were reported by Rao S. et al., Zainab Taha et al., Mukesh Chandra Sharma et al., and Adhikari N. et al.

13 Maternal Occupation
Most mothers were **housewives (75%)**, while **25% were employed**. Due to the small sample size, correlation between employment status and feeding frequency could not be determined (p = 3.366).

14 Assessment of Mother's KAP on Complementary Feeding
The validated questionnaire assessed **knowledge, attitude, and practices** regarding complementary feeding.

a) Knowledge
- **Before counseling:** 52% had average knowledge, 4% had poor knowledge.
- **After counseling:** 99% had good knowledge.
- **Mean scores:** Before = 6.46 ± 1.73, After = 8.57 ± 0.98 (Spearman's correlation, p = 0.0084).

b) Attitude
- **Before counseling:** 61% had good attitude, 32% had average attitude.
- **After counseling:** 100% had good attitude.
- **Mean scores:** Before = 4.13 ± 1.01, After = 5.43 ± 0.68 (p = 0.0361).

c) Practices
- **Before counseling:** 61% had good practices, 39% had average practices.
- **After counseling:** 100% demonstrated good practices.
- **Mean scores:** Before = 21.07 ± 2.46, After = 25.99 ± 1.65 (p = 0.00017).

These results indicate that **structured counseling significantly improves mothers' KAP** regarding complementary feeding.

15 Factors Influencing Inadequate Complementary Feeding
Significant factors included:

- Maternal education (p = 0.0478)
- Socioeconomic status (p = 0.0356)
- Use of home-made and commercially prepared foods
- Family type
- Inadequacy in food quality and quantity (p = 0.00017)

These findings are consistent with studies by Ram Hari Chapagain and Yimer Mihretie, highlighting that maternal education, family type, religion, and residence influence complementary feeding practices.

CONCLUSION:

Complementary feeding is the process of introducing foods and liquids **alongside breastmilk when breastmilk alone is insufficient**, typically from **6 to 24 months**.

In this study:

- **Majority of children** were introduced to complementary feeding at **6 months**.
- **Maternal education and socioeconomic status** play a key role in proper knowledge and feeding practices.
- Despite education, mothers' knowledge on complementary feeding was **moderate before counseling**.
- After **structured counseling**, significant improvement in mothers' knowledge, attitude, and practices was observed, ensuring **adequate quality and quantity of feeds**.

Recommendation: Counseling mothers during **antenatal, postnatal, immunization visits, and general checkups** enhances complementary feeding practices, contributing to **optimal child growth and development**.

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