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Knowledge, Attitudes and Practices of Mothers Regarding Complementary Feeding of Children Aged 6 Months To 2 Years Visiting the Outpatient Clinic at A Tertiary Care Hospital in Eastern Nepal

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ABSTRACT

Introduction: Complementary feeding is essential for growth and development during early childhood, particularly between 6 months and 2 years of age, when breast milk alone can no longer meet nutritional needs. In Nepal, suboptimal complementary feeding practices continue to contribute to child undernutrition, making it important to understand mothers' knowledge, attitudes, and practices (KAP) in the local context. This study aimed to assess the KAP of mothers regarding complementary feeding and describe their socio-demographic profile attending Birat Medical College Teaching Hospital.

Methods: A descriptive cross-sectional study was conducted among 214 mothers of children aged 6 months to 2 years attending the pediatric outpatient clinic. Participants were selected through convenience sampling. Data were collected using a structured, interviewer-administered questionnaire based on WHO Infant and Young Child Feeding guidelines. Descriptive statistics were applied and results were presented as frequencies and percentages.

Results: Most mothers were aged 20–29 years (62.6%), educated up to higher secondary or college level (36.4%), and predominantly housewives (68.2%). A total of 61.2% correctly identified 6 months as the appropriate age to begin complementary feeding. Attitudes were largely positive, with 87.4% considering complementary feeding very important and 69.2% agreeing that exclusive breastfeeding for the first 6 months is sufficient. In practice, 48.1% initiated complementary feeding at exactly 6 months, and 46.7% reported feeding their child three times daily. Common foods included fruits (58.9%), rice porridge (38.3%), and boiled eggs (38.3%). Hygiene practices were generally satisfactory, with 72% washing hands before preparing food. Additionally, 66.8% had sought healthcare advice on feeding, mainly from doctors (61.7%).

Conclusion: Mothers demonstrated generally positive attitudes and moderate knowledge regarding complementary feeding, although deviations from recommended feeding practices were evident. Strengthening routine counselling and community-based nutrition education may help bridge remaining gaps and promote optimal complementary feeding behaviours in this population.

Introduction

Appropriate nutrition during the first two years of life is essential for optimal growth, immune function, and neurodevelopment. Inadequate complementary feeding practices are a major contributor to undernutrition in low- and middle-income countries. In Nepal, despite improvements in child-health indicators, malnutrition remains a pervasive public-health issue. The Nepal Demographic

and Health Survey 2022 reports that 25% of children under five are stunted, 8% are wasted, and 19% are underweight, demonstrating persistent gaps in early-childhood nutrition.¹

Complementary feeding—the introduction of nutritionally adequate, diverse, and safe foods at six months of age while continuing breastfeeding—is a key component of infant and young child feeding (IYCF) as recommended by the World Health Organization.² However, studies indicate that many Nepali children experience delayed initiation of solid foods, insufficient meal frequency, and limited dietary diversity.^{3,4} These issues are often shaped by maternal knowledge, attitudes, cultural beliefs, food affordability, and the quality of counselling provided during routine health visits.

Nepal's Multi-Sector Nutrition Plan (MSNP II) emphasizes improving maternal awareness, strengthening community-based nutrition counselling, and enhancing the role of Female Community Health Volunteers (FCHVs) in supporting optimal feeding practices.⁵ Nevertheless, evidence shows considerable variation in maternal knowledge and behaviour across different communities, suggesting the need for localized assessments to inform targeted interventions.

This study aims to assess the knowledge, attitudes, and practices of mothers regarding complementary feeding practices for children aged 6 months to 2 years attending the outpatient clinic at Birat Medical College Teaching Hospital. The findings are expected to highlight specific strengths and gaps within this population, thereby contributing to the refinement of community-based counselling strategies, supporting policy implementation, and improving complementary feeding outcomes in similar clinical and community settings.

Methodology

A descriptive cross-sectional study was carried out at the outpatient clinic of Birat Medical College Teaching Hospital between January to August 2025, among mothers of children aged 6 months to 2 years. The participating mothers were selected through convenience sampling as they attended the pediatric outpatient department during the study period. Mothers aged 18 years or above with a child in the eligible age group were included, while those with children who had chronic or congenital feeding-related conditions were excluded. The sample size was calculated using the formula $n = (Z^2 P(1-P))/E^2$ with $Z = 1.44$ for an 85% confidence level, $P = 0.5$ due to lack of prior estimates, and a margin of error of 0.05. Plugging in the values gives the required sample size of 207.

Data were collected using a structured, interviewer-administered questionnaire based on WHO Infant and Young Child Feeding guidelines and relevant literature. The tool captured socio-demographic characteristics as well as mothers' knowledge, attitudes, and self-reported practices related to complementary feeding. The questionnaire was pre-tested to ensure clarity and usability.

Data were entered in Microsoft Excel and analyzed descriptively using SPSS version 21. Results were summarized using frequencies and percentages. Ethical approval was obtained

from the Institutional Review Committee of Birat Medical College Teaching Hospital, and written informed consent was obtained from all participants

Results

A total of 214 mothers were recruited for the study. The demographic profile of the mothers in the study showed that the majority were aged between 20 and 29 years, accounting for 62.6%, followed by 30 to 39 years at 30.8% (Table 1). Very few were younger than 20 or older than 40 years (both at 3.3%). Regarding educational status, 36.4% had completed higher secondary school or college, while 18.2% were graduates or above. Illiteracy was reported in 14.5% of mothers, and smaller proportions completed primary or secondary school levels. Most mothers (68.2%) were housewives, with a smaller number engaged in government or private jobs (16.8%), and some self-employed or students. Family income distribution in Nepalese Rupees (NRs) showed that about two-thirds fell between the ranges of 10,000 to 50,000 (33.6% and 33.2% respectively), whereas 20.1% earned less than 10,000, and 13.1% had incomes over 50,000. The study population was nearly evenly split between urban (52.3%) and rural (47.7%) residents.

Table 1: Demographic Information

Demographic Information		Frequency	Percent
Age of Mother	< 20 years	7	3.3
	20-29 years	134	62.6
	30-39 years	66	30.8
	> 40 years	7	3.3
Educational level	Illiterate	31	14.5
	Primary School	23	10.7
	Secondary School	43	20.1
	Higher Secondary / College	78	36.4
	Graduate or Higher	39	18.2
Occupation of Mother	Housewife	146	68.2
	Self-employed	15	7.0
	Government / Private Job	36	16.8
	Student	11	5.1
	Others	6	2.8
Monthly Family Income (Nepalese Rupees)	< 10000	43	20.1
	10000 – 30000	72	33.6
	30000- 50000	71	33.2
	> 50000	28	13.1
Place of residence	Urban	112	52.3
	Rural	102	47.7

In terms of knowledge about complementary feeding, 61.2% of mothers correctly identified six months as the appropriate age to introduce solid foods (Table 2). However, some believed solids should be introduced earlier (4-5 months, 4.7%) or later

than recommended (7-8 months, 18.7%, and 9 months or older, 15.4%). When asked about suitable foods for a six-month-old, 41.6% indicated milk only, while 36.5% selected rice porridge, mashed vegetables, and fruits; 22% chose none of these options. Feeding frequency responses showed that over half (53.3%) believed feeding should be as much as the child wants, while 32.2% favored three times a day. Regarding foods to avoid in the first year, half of the mothers correctly identified all listed items—salt, sugar, and honey. Opinions on the age to cease breast/formula feeding and transition completely to solids varied widely, with 48.1% suggesting after two years, and smaller percentages favoring earlier transitions.

Table 2: Knowledge of Complementary Feeding

Knowledge of Complementary Feeding		Frequency	Percent
Appropriate Age to Introduce Solid Foods	4-5 months	10	4.7
	6 months	131	61.2
	7-8 months	40	18.7
	9 months or older	33	15.4
Recommended food for 6-month-old child	Rice Porridge, Mashed vegetables and Fruits	78	36.5
	Milk only	89	41.6
	None of the above	47	22.0
Feeding frequency for a 6-8 months old child	Once a day	6	2.8
	Twice a day	25	11.7
	Three times a day	69	32.2
	As much as child wants	114	53.3
Foods to Avoid in First Year	Salt	35	16.4
	Sugar	51	23.8
	Honey	21	9.8
	All of the above	107	50.0
Age to Stop Breast/Formula & Shift to Solids	By 6 months	40	18.7
	By 1 year	35	16.4
	By 2 years	36	16.8
	After 2 years	103	48.1

Attitudinally, complementary feeding was regarded as very important by 87.4% of mothers, and 69.2% agreed that exclusive breastfeeding for six months is sufficient (Table 3). When asked about their preferred source of feeding guidance, half preferred a combination of traditional and modern guidelines, while 22.9% favored modern guidelines alone. Confidence in preparing nutritious complementary foods was high, with 56.5% feeling very confident and 30.4% somewhat confident. Most mothers (84.1%) expressed a desire for more community education on complementary feeding.

Table 3: Attitude towards Complementary Feeding

Attitude towards Complementary Feeding		Frequency	Percent
Importance of Complementary Feeding	Very important	187	87.4
	Somewhat important	10	4.7
	Not important	2	.9
	Don't Know	15	7.0
Exclusive breastfeeding for 6 Months is Sufficient	Yes	148	69.2
	No	46	21.5
	Not Sure	20	9.3
Preferred Feeding Guidance	Traditional Practices	42	19.6
	Modern Guidelines	49	22.9
	Both	108	50.5
	Don't Know	15	7.0
Confidence in Preparing Nutritious Foods	Very Confident	121	56.5
	Somewhat confident	65	30.4
	Not confident	8	3.7
	Not Sure	20	9.3
Need for More complementary feeding education in Community	Yes	180	84.1
	No	3	1.4
	Not sure	31	14.5

Reported practices showed that nearly half (48.1%) started complementary feeding exactly at six months, but early initiation (<6 months) occurred in 8.9% of cases (Table 4). Common foods given included fruits (58.9%), rice porridge and boiled eggs (both 38.3%), mashed vegetables (22.9%), and meat or fish (29.0%). Feeding frequency was most commonly three times daily (46.7%), followed by more than three times (34.1%). Special feeding practices were reported by 66.8%. Good hygiene practices were widely followed: 72% washed hands before preparing food, and around half practiced washing fruits and vegetables thoroughly and used clean water and utensils. Healthcare advice was sought by 66.8%, primarily from doctors (61.7%), nurses, and nutritionists.

Several barriers to optimal complementary feeding were identified. The most frequent challenge was the child's refusal to eat (43%), followed by lack of knowledge about what foods to feed (35.5%) and lack of time (28%) (Table 5). Economic factors such as inability to afford nutritious foods and unavailability of suitable foods were less commonly cited. Despite these challenges, there was strong interest in educational sessions on complementary feeding, with 82.2% expressing willingness to participate.

Table 4: Practices of Complementary Feeding

Practices of Complementary Feeding		Frequency	Percent
Age of Starting Complementary Foods	Less than 6 months	19	8.9
	Exactly 6 months	103	48.1
	7-8 months	59	27.6
	After 8 months	33	15.4
Types of Foods Currently Given (Multiple Response)	Rice Porridge	82	38.3
	Mashed Vegetables	49	22.9
	Boiled eggs	82	38.3
	Fruits (eg. Banana, apple)	126	58.9
	Meat or Fish	64	29.0
	Others	35	16.3
Feeding Frequency per Day	Once	11	5.1
	Twice	30	14.0
	Three times	100	46.7
	More than three times	73	34.1
Hygiene Practices Followed (Multiple Response)	Wash hands before preparing food	154	72
	Wash fruits and vegetables thoroughly	111	51.9
	Use fresh and clean water for cooking	105	49.1
	Use clean utensils and cooking materials	105	49.1
	Don't pay attention to hygiene	26	12.1
Sought Healthcare Advice	Yes	143	66.8
	No	71	33.2
Received Advice from	Doctor	132	61.7
	Nurse	25	11.7
	Nutritionist	25	11.7
	Other	32	15.0

Table 5: Barriers to Complementary Feeding

Barriers to Complementary Feeding		Frequency	Percent
Challenges Faced (Multiple Response)	Lack of time	60	28
	Lack of Knowledge about what to feed	76	35.5
	Inability to afford nutritious foods	35	16.3
	Unavailability of suitable foods	30	14
	Child's refusal to eat	92	43
	Other	6	2.8
Interest in Educational Sessions	Yes	176	82.2
	No	12	5.6
	Not Sure	26	12.1

Discussion

The findings of this study reveal encouraging awareness about complementary feeding but also highlight persistent gaps that mirror patterns documented both in Nepal and globally. Most mothers were young (62.6% aged 20–29 years), an age group shown in previous South Asian research to be more receptive to health advice but vulnerable when educational exposure is limited.^{1,3} The presence of 14.5% illiterate mothers reflects similar demographic challenges described in the 2022 Nepal Demographic and Health Survey (NDHS), where maternal education is strongly linked with child nutrition outcomes.¹

Knowledge findings align only partly with global recommendations. While 61.2% correctly identified six months as the age to start complementary foods—consistent with WHO⁶ and UNICEF⁷ guidance—a substantial proportion held inaccurate beliefs. While the 2016 NDHS data highlights 83-96%⁸ mothers in Nepal continuing breastfeeding beyond the first 6 months in encouraging, the misconception among 41.6% in the present study that “milk only” is adequate is concerning. This suggests that despite Nepal's National Nutrition Strategy emphasizing timely complementary feeding through Multisector Nutrition Plan (MSNP) – III⁵, policy messages may not be reaching caregivers effectively.

Dietary misconceptions were evident as well. Only half (50.0%) recognized that salt, sugar, and honey should be avoided in the first year—knowledge gaps also highlighted in studies from India⁹ and Bangladesh.¹⁰ These findings reinforce WHO recommendations that emphasize avoiding honey due to botulism risk and limiting added salt and sugar.²

Attitudes were largely positive. Nearly nine in ten mothers (87.4%) viewed complementary feeding as “very important,” and 69.2% agreed that exclusive breastfeeding for six months is sufficient, aligning with WHO/UNICEF Global Breastfeeding Collective, 2018.¹¹ The preference of 50.5% for blending traditional and modern practices reflects cultural patterns noted in nutritional behaviour in the current study is interesting. High confidence (56.5% “very confident”) and interest in community education (84.1%) suggest readiness for behaviour change interventions,

consistent with success observed in community-based programs like Save the Children¹²; Helen Keller International.¹³

Feeding practices showed both adherence and deviation from recommendations. While 48.1% initiated feeding at six months, 43% started late—a trend consistent with NDHS findings where delays in dietary diversification persist.¹ Fruits (58.9%) and rice porridge (38.3%) were commonly given, a pattern described in 2021 Ministry of Health and Population national nutritional report.¹⁴ However, limited use of protein-rich foods reflects broader challenges in achieving dietary diversity, highlighted across Nepal and South Asia by the 2020 Global Nutrition Report.¹⁵ Hygiene practices were strong for many households, yet 12.1% ignored hygiene entirely, indicating areas where WASH–nutrition integration an initiative of 2019 UNICEF WASH–Nutrition Framework could be strengthened.¹⁶

Barriers observed—child refusal (43%), lack of knowledge (35.5%), limited time (28%), and financial constraints (16.3%)—echo findings across Nepal and neighbouring countries.¹⁷ These factors reflect the broader structural determinants emphasized in UNICEF’s “Nutrition in the First 1,000 Days” framework.¹⁸ These findings highlight a gap between national policy and household practice. While guidelines are aligned with global standards, their implementation appears uneven. The strong preference for education (82.2%) underscores the potential impact of culturally sensitive, community-based programs delivered through Female Community Health Volunteers (FCHVs), nurses, and other healthcare workers—an approach strongly supported by WHO and Nepal’s MSNP-II.¹⁹

This study thus reinforces the need to strengthen community-level nutrition counselling, improve dissemination of feeding guidelines, and integrate complementary feeding education into routine maternal and child health services. These recommendations align with WHO, UNICEF, and national policy priorities aimed at improving infant and young child feeding practices in Nepal.

Limitations of the Study

The study was limited to a single outpatient clinic, which may restrict generalizability. Reliance on self-reported information introduces recall and social-desirability bias. As a cross-sectional study, it captures only one point in time and cannot assess changes or causality. Feeding practices were not directly observed, and no nutritional or anthropometric assessments were included to validate reported behaviors.

Conclusion

Mothers demonstrated generally positive knowledge and attitudes toward complementary feeding, yet notable gaps persisted in actual practices, particularly regarding meal frequency and dietary diversity. These findings highlight the need for strengthened nutrition counselling at the primary-care level to support appropriate feeding behaviours during early childhood.

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Conflict of Interest

The authors declare no conflicts of interest.

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