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A Cross-Sectional Study to Assess the Knowledge, Attitude and Practices Regarding Planned Weaning Among Mothers Residing in Slum Areas of Belagavi

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Abstract

Background: Planned weaning at six months is crucial for infant growth and development. In low-income communities, lack of knowledge and traditional beliefs often delay the timely introduction of complementary feeding.

Objectives: To assess the knowledge, attitude and practices related to planned weaning among mothers in the slum areas of Belagavi.

Materials and Methods: A community-based cross-sectional study was conducted among 125 lactating mothers residing in two slum areas of Belagavi. Data were collected using a structured questionnaire through simple random sampling. Statistical analysis was performed using SPSS, with results expressed in proportions and chi-square tests applied to determine associations.

Results: Among the participants, 69.6% demonstrated good

knowledge regarding complementary feeding. A majority (53.6%) correctly identified six months as the recommended age to begin weaning. While 92.8% practiced feeding soft foods post-six months, only 66.4% regularly offered vitamin-rich fruits, and 29.6% reported force-feeding. A significant association was found between child's gender and maternal knowledge ($p < 0.005$). Hygiene practices were generally sound, with 95.2% washing hands before food preparation and 100% boiling drinking water.

Conclusion: Although mothers showed adequate awareness of weaning practices, inconsistencies remain in actual implementation due to cultural habits and misconceptions. Educational interventions focusing on both knowledge and behavior change are necessary to improve infant nutrition in underserved communities.

Keywords: Complementary Feeding, Planned Weaning, Slum Mothers, Infant Nutrition, Maternal Knowledge, Cross-Sectional Study

Introduction

Weaning refers to the process of introducing semi-solid foods to an infant's diet while gradually reducing breastfeeding. According to WHO and the Indian Academy of Pediatrics, weaning should ideally begin at six months to meet the child's growing nutritional needs. However, in socioeconomically disadvantaged communities, timely and appropriate weaning is often delayed due to limited access to health education and cultural beliefs^[1].

In India, the NFHS-5 reported that only 46% of children aged 6–8 months receive complementary foods, with undernutrition indicators stunting (35%), wasting (17%), and underweight (33%) still prevalent. Delayed weaning practices have been associated with increased morbidity, growth faltering, and developmental delays^[2].

The present study aims to assess the level of knowledge and practices of mothers regarding planned weaning in slum areas of Belagavi, Karnataka, to inform the development of targeted nutrition education programs.

Materials and Methods:

Study Design: Cross-sectional descriptive study.

Study Setting: Rukmini Nagar and Ashok Nagar slum areas, Belagavi.

Study Population: Lactating mothers of children aged 6–24 months.

Sample Size: 125 mothers, calculated using standard formula with 17% tolerable error and 95% confidence interval.

Sampling Technique: Simple random sampling using the lottery method.

Data Collection Tool: Structured questionnaire covering socio-demographic details, knowledge, and practices related to weaning.

Inclusion Criteria:

Mothers with children aged above 6 months.

Permanent residents of the selected slum areas.

Exclusion Criteria:

Mothers who did not consent to participate.

Ethical Approval: Obtained from the Institutional Ethics Committee. Written informed consent was taken from all participants.

Data Analysis: Data were analyzed using SPSS. Descriptive statistics were presented as frequencies and percentages. Chi-square tests were used to determine associations between knowledge levels and socio-demographic variables.

Results:

Total 125 mothers were interviewed using structured questionnaire. The data of these 125 participants is analysed and is presented in tabular and graphical presentations.

Table 1: Socio-Demographic Profile of Mothers and Their Infants (N = 125)

Socio-Demographic Variable	n (%)
Educational Level	
High school	2 (1.6)
Primary	120 (96)
UG	3 (2.4)
Occupation	
Fisher woman	1 (0.8)
House wife	122 (97.6)
Teacher	2 (1.6)
Number of children	
1	81 (64.8)
2	32 (25.6)
3	9 (7.2)
4	1 (0.8)
5	2 (1.6)
Gender of Child	
Boy	71 (56.8)
Girl	54 (43.2)
Age of infant	
7 months	6 (4.8)
8 months	15 (12)
9 months	13 (10.4)
10 months	6 (4.8)
11 months	19 (15.2)
12 months	19 (6.4)
13 months	28 (22.4)
14 months	12 (9.6)
15 months	3 (2.4)

16 months	4 (3.2)
Socio- economic status	
Lower class	108 (86.4)
Middle class	17 (13.6)

Out of 125 mothers, 96% of the participants had primary education, 1.6% had completed high school, and 2.4% had undergraduate education. Regarding occupation, 97.6% were housewives, 1.6% were teachers, and 0.8% were fisherwomen. For the number of children, 64.8% had one child, 25.6% had two, 7.2% had three, 0.8% had four, and 1.6% had five children. The gender distribution of children showed that 56.8% were boys and 43.2% were girls. As for the age of infants, 4.8% were 7 months old, 12% were 8 months, 10.4% were 9 months, 4.8% were 10 months, 15.2% were 11 months, 6.4% were 12 months, 22.4% were 13 months, 9.6% were 14 months, 2.4% were 15 months, and 3.2% were 16 months old.

In terms of socio-economic status, 86.4% mothers belonged to the lower class and 13.6% to the middle class. The mean age of the mothers was 24.48 years with a standard deviation of 3.67, indicating moderate variability in age among participants. The minimum age recorded was 19 years, while the maximum age was 39 years. (Table 1)

Table 2: Distribution of Mothers Based on Knowledge About Complementary Feeding (N = 125)

Knowledge about Complementary Feeding	n (%)
Normal age of complementary feeding	
Before 6 months	1 (0.8)
At 6 months	67 (53.6)
After 6 months but before 1 year	48 (38.4)
After 1 year	9 (7.2)
Foods appropriate to introduce first during weaning	
Rice porridge	125 (100)
Fruit juice	0 (0)
Tea biscuit	0 (0)
Bread	0 (0)
Time period of breastfeeding after introducing weaning foods complementary feeding?	
6 months	0 (0)
9 months	2 (1.6)
15 months	49 (39.2)
2 years	74 (59.2)
Foods that can help improve the baby's weight and growth	
Khichdi with ghee and mashed vegetables	97 (77.6)
Only plain rice	28 (22.4)
Fruit juice	0 (0)
Parle-G biscuits	0 (0)
Signs that the baby is ready to start eating solid foods	
Starts walking	1 (0.8)
Shows interest in food	122 (97.6)
Can chew and swallow food	2 (1.6)
Refuses breast milk	0 (0)
Factor that is a major barrier to proper weaning practices in slum area	
Lack of knowledge about importance of nutrition and weaning	125 (100)
Easy availability of Cow's milk	0 (0)
High economic status	0 (0)
Easy availability of expensive baby food	0 (0)
Important hygiene measure to follow while preparing weaning food	
Using raw vegetables without washing	0 (0)

Feeding directly with unclean hands	0 (0)
Boiling drinking water before preparation	125 (100)
Storing food for more than 24 hours at room temperature	0 (0)

Among the lactating mothers the normal age of complementary feeding, 0.8% of participants believed it should start before 6 months, 53.6% at 6 months, 38.4% after 6 months but before 1 year, and 7.2% after 1 year. For appropriate first foods during weaning, 100% identified rice porridge as suitable, while nobody selected fruit juice, tea biscuit, or bread. When asked about the breastfeeding duration after introducing weaning foods, no one chose 6 months, 1.6% chose 9 months, 39.2% chose 15 months, and 59.2% chose 2 years. Concerning foods that help in improving the baby's weight and growth, 77.6% favored khichdi with ghee and mashed vegetables, while 22.4% chose only plain rice, and none of the mothers selected fruit juice or Parle-G biscuits. 0.8% of the mothers selected "starts walking, as a sign to indicate a baby is ready for solid foods, similarly 97.6% chose "shows interest in food," 1.6% chose "can chew and swallow food," and none of them chose "refuses breast milk." On barriers to proper weaning in slum areas, 100% identified a lack of knowledge about the importance of nutrition and weaning as the major factor, with 0% attributing it to cow's milk availability, high economic status, or access to expensive baby food. For hygiene measures while preparing weaning food, 100% emphasized boiling drinking water before preparation, while no one selected using unwashed raw vegetables, feeding with unclean hands, or storing food at room temperature for over 24 hours. (table 2)

Table 3: Distribution of Mothers Based on Attitudes Towards Complementary Feeding (N = 125)

Attitudes towards Complementary Feeding	n (%)
Confidence in ability to prepare healthy weaning foods for the baby	
Very confident	61 (48.8)
Somewhat confident	59 (47.2)
Unsure	5 (4)
Not confident	0 (0)
Belief that homemade foods are better than commercially prepared baby foods for weaning	
Strongly agree	70 (56)
Agree	54 (43.2)
Disagree	1 (0.8)
Strongly disagree	0 (0)
Belief that it is important to introduce a variety of foods to the baby during weaning	
Strongly agree	60 (48)
Agree	61 (48.8)
Disagree	4 (3.2)
Strongly disagree	0 (0)
Belief that it is alright to add salt, sugar, or spices to the baby's food	
Strongly agree	28 (22.4)
Agree	62 (49.6)
Disagree	30 (24)
Strongly disagree	5 (4)
Belief that honey should not be given to babies below 12 months	
Strongly agree	29 (23.2)

Agree	52 (41.6)
Disagree	38 (30.4)
Strongly disagree	6 (4.8)

Regarding confidence in preparing healthy weaning foods, 48.8% of participants were very confident, 47.2% were somewhat confident, 4% were unsure. In terms of the belief that homemade foods are better than commercially prepared baby foods, 56% strongly agreed, 43.2% agreed, 0.8% disagreed. On the importance of introducing a variety of foods during weaning, 48% strongly agreed, 48.8% agreed, 3.2% disagreed. When asked about adding salt, sugar, or spices to baby food, 22.4% strongly agreed, 49.6% agreed, 24% disagreed, and 4% strongly disagreed. Regarding the belief that honey should not be given to babies under 12 months, 23.2% strongly agreed, 41.6% agreed, 30.4% disagreed, and 4.8% strongly disagreed (table 3)

Table 4: Distribution of Mothers Based on Complementary Feeding Practices (N = 125)

Practices of Complementary Feeding	n (%)
Practice of feeding soft foods to the baby after she/he turned 6 months old	
No	9 (7.2)
Yes	116 (92.8)
Practice of feeding the baby soft foods at least thrice a day	
No	6 (4.8)
Yes	117 (95.2)
Feeding Vitamin A and vitamin C rich fruits like oranges, mosambi, papaya and guava to the baby at least thrice a week	
No	42 (33.6)
Yes	83 (66.4)
Practice of freshly preparing the complementary foods for the baby	
No	2 (1.6)
Yes	123 (98.4)
Receiving advice from healthcare providers about weaning practices	
No	26 (20.8)
Yes	99 (79.2)
Habit of washing hands with soap before and after preparing food for the baby	
No	6 (4.8)
Yes	119 (95.2)
Habit of force-feeding if the baby refuses to eat the weaning foods being offered	
No	88 (70.4)
Yes	37 (29.6)
Practice of giving cow's milk assuming it's safe for babies below 12 months	
No	120 (96)
Yes	5 (4)

Among all the mothers, total of 92.8% of participants practiced feeding soft foods to the baby after 6 months of age, while 7.2% did not. Regarding the frequency of feeding soft foods at least thrice a day, 95.2% followed this practice, and 4.8% did not. In terms of feeding Vitamin, A and C-rich fruits like oranges, mosambi, papaya, and guava at least three times a week, 66.4% did so, while 33.6% did not. Freshly preparing complementary foods for the baby was practiced by 98.4% of participants, and only 1.6% did not follow this. When it came to receiving advice from healthcare providers about weaning, 79.2% reported

receiving such guidance, while 20.8% had not. As for hygiene, 95.2% of participants had the habit of washing hands with soap before and after preparing food for the baby, whereas 4.8% did not. Regarding the practice of force-feeding when the baby refuses food, 29.6% admitted to it, while 70.4% did not. Finally, 4% gave cow's milk to babies under 12 months, assuming it to be safe, while 96% did not. (table 4)

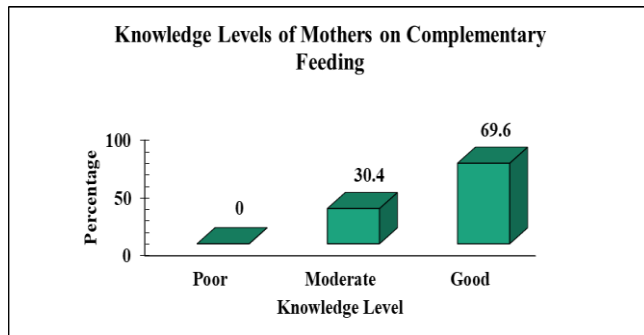


Fig 1: Knowledge Levels of Mothers on Complementary Feeding

Among the total participants, 30.4% had moderate knowledge, and 69.6% had good knowledge.

Table 5: Association Between Socio-Demographic Variables and Knowledge Levels on Complementary Feeding (N = 125)

Socio-Demographic Variable	Knowledge groups (a)			p-value
	Poor	Moderate	Good	
	n (%)	n (%)	n (%)	
Educational Level				
High school	0 (0.0)	0 (0.0)	2 (100.0)	0.593
Primary	0 (0.0)	38 (31.7)	82 (68.3)	
UG	0 (0.0)	0 (0.0)	3 (100.0)	
Occupation				
Fisher woman	0 (0.0)	0 (0.0)	1 (100)	1.000
House wife	0 (0.0)	38 (31.4)	83 (68.6)	
Teacher	0 (0.0)	0 (0.0)	3 (100)	
Number of children				
1	0 (0.0)	27 (33.3)	54 (66.7)	0.880
2	0 (0.0)	9 (28.125)	23 (71.9)	
3	0 (0.0)	2 (22.2)	7 (77.8)	
4	0 (0.0)	0 (0.0)	1 (100.0)	
5	0 (0.0)	0 (0.0)	2 (100.0)	
Baby's gender				
Boy	0 (0.0)	30 (42.3)	41 (57.7)	0.000*
Girl	0 (0.0)	4 (7.4)	50 (92.6)	
Age of infant				
7 months	0 (0.0)	2 (33.3)	4 (66.7)	0.359
8 months	0 (0.0)	4 (26.7)	11 (73.3)	
9 months	0 (0.0)	5 (38.5)	8 (61.5)	
10 months	0 (0.0)	1 (16.7)	5 (83.3)	
11 months	0 (0.0)	3 (15.7)	16 (84.2)	
12 months	0 (0.0)	8 (42.1)	11 (57.9)	
13 months	0 (0.0)	7 (25)	21 (75.0)	
14 months	0 (0.0)	5 (41.7)	7 (58.3)	
15 months	0 (0.0)	0 (0.0)	3 (100.0)	
16 months	0 (0.0)	3 (75)	1 (25.0)	
Socio- economic status				
Lower class	0 (0.0)	34 (31.4)	74 (68.5)	0.584
Middle class	0 (0.0)	4 (23.5)	13 (76.4)	

[*p-value is significant at 0.05 level, (a) = Fisher's Exact Test]

The association between various socio-demographic variables and mothers' knowledge levels regarding complementary feeding was calculated using the Fisher's Exact Test. For educational level, all participants with high school (100%) and undergraduate education (100%) had good knowledge. Among those with primary education, 69.1% had good knowledge, while 30.9% had moderate knowledge. In terms of occupation, all teachers (100%) and the fisherwoman (100%) had good knowledge. Among housewives, 68.6% had good knowledge, and 31.4% had moderate knowledge. Looking at the number of children, the majority of participants across all categories had good knowledge. For example, among those with one child, 66.7% had good knowledge, and 33.3% had moderate knowledge. Among participants with two children, 71.9% had good knowledge, and 28.1% had moderate knowledge. There is a significant association between the child's gender and the mother's knowledge level. Among mothers of boys, 57.7% had good knowledge, and 42.3% had moderate knowledge. In contrast, among mothers of girls, 92.6% had good knowledge, and only 7.4% had moderate knowledge. When considering the age of the infant, knowledge levels were generally high across all age groups. For infants aged 11 months, 84.2% had good knowledge, while 15.7% had moderate knowledge. For 12-month-old infants, 57.9% of mothers had good knowledge, and 42.1% had moderate knowledge. Regarding socio-economic status, 68.5% of lower-class participants had good knowledge, while 76.4% of middle-class participants had good knowledge, indicating a higher percentage of good knowledge among middle-class participants. (table 5)

Discussion:

The present study assessed the knowledge and practices related to planned weaning among mothers residing in slum areas of Belagavi. The socio-demographic characteristics of the participants majority being housewives (97.6%) and having only primary-level education (96%) are consistent with findings from a study in East Delhi⁹, where similar educational limitations influenced complementary feeding behavior. In contrast, studies conducted in urban slums of Lahore⁸ and Dhaka⁴ reported higher proportions of working mothers engaged in informal labor, often resulting in reduced maternal involvement in infant feeding and reliance on alternate caregivers. Furthermore, 64.8% of participants in the current study had only one child, similar to data reported from slum regions of Mumbai, where nuclear family structures predominated and limited family support influenced feeding routines.³

The knowledge level regarding complementary feeding was moderately high in this study, with 69.6% demonstrating good knowledge and 53.6% correctly identifying 6 months as the ideal weaning age. These findings align with a study from Uttarakhand, where over half of the mothers were aware of recommended weaning timelines, although actual implementation varied.⁵ Similar gaps between knowledge and practice were noted in a Bangladesh-based study, where early or delayed initiation of weaning was common despite basic awareness.⁶

Most mothers (92.8%) introduced soft, semi-solid foods after six months, which is consistent with the guidelines set by the World Health Organization¹ and findings from rural

Maharashtra.¹³ However, only 66.4% of participants provided vitamin-rich fruits regularly, and nearly 30% admitted to force-feeding behaviors reflecting anxiety about inadequate intake. Similar observations were made in a study from Haryana, where caregivers reported pressuring children to eat due to fear of malnutrition¹⁴. Cultural misconceptions also played a role; some mothers avoided fruits like papaya and banana due to beliefs that they cause illness paralleling findings from Sylhet⁷ and Lahore⁸, where mothers perceived certain foods as “heaty” or harmful. Encouragingly, hygiene practices were strong among participants: 100% reported boiling drinking water and 95.2% washed hands before feeding. Such practices mirror those found in a study conducted in Telangana, where awareness campaigns on hygiene improved basic feeding practices, even in resource-poor settings.¹⁵ However, nutrition adequacy cannot be ensured by hygiene alone; consistent dietary diversity remains crucial.

A significant association ($p < 0.005$) was observed between the gender of the child and the mother's knowledge level in the present study. This suggests underlying gender bias, potentially affecting the priority given to infant care. While a similar trend was reported in a study from Maharashtra [17], other studies, such as one in Maval Taluka¹², found no gender-based difference, highlighting the role of local socio-cultural dynamics.

The influence of family particularly elder women like mothers-in-law on feeding decisions was noted during the survey, though not directly analyzed in the quantitative component. Other studies, such as those from Kenya¹⁰ and UAE¹¹, emphasize the importance of engaging family networks when designing interventions, as traditional authority figures often shape household practices.

Overall, this study reinforces a recurring theme seen in South Asia: knowledge about planned weaning is present, but practices are shaped by a complex mix of cultural norms, misinformation, and socioeconomic limitations. To close this gap, interventions must move beyond individual education and focus on household and community-based strategies especially involving elder caregivers and addressing traditional beliefs.

Conclusion

Although awareness of complementary feeding is present among slum-dwelling mothers, practical application is hindered by traditional beliefs and limited dietary diversity. Context-specific, culturally sensitive nutrition education programs are essential to bridge the knowledge-practice gap and enhance child health outcomes.

Abbreviations Used:

NFHS – National Family Health Survey

WHO – World Health Organization

SPSS – Statistical Package for the Social Sciences

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Conflicts of Interest: None declared.

Ethical Approval: Approved by the Institutional Ethics Committee.

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