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A Study on Feeding Difficulties and Practices Affecting Nutritional status of Children Aged 1 to 5 Years

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Abstract

Background: Early childhood (12–59 months) is a critical period for growth and development, where feeding practices play a pivotal role in shaping nutritional and health outcomes. Feeding difficulties during this period may contribute to growth faltering and malnutrition.

Objective: This study aimed to assess the frequency of feeding problems and evaluate the association between feeding practices and difficulties, and nutritional status among the children in this age group.

Methods: A cross-sectional study was conducted involving 304 children aged 1 to 5 years. Data were collected using a predesigned schedule to caregivers, covering demographic details, feeding history, and specific feeding problems. Statistical analysis was performed to determine associations between feeding practices and feeding problems.

Results: A total of 304 children aged 12–59 months were included in the study, of whom 46.4% were males and 53.6% were females. Overall, 29.9% of children were undernourished, with the prevalence increasing across age groups. According to WHO Z-score classifications, 21.8% of children were underweight (11.8% moderately and 10.0% severely underweight), 13.3% were stunted (7.0% moderately and 6.3% severely stunted), and 23.3% were wasted (13.8% moderately and 9.5% severely wasted). Feeding problems, particularly limited appetite, were significantly associated with underweight, stunting, and wasting ($p < 0.05$).

Conclusion: Feeding problems are common among young children and often linked to modifiable caregiver practices. Promoting responsive feeding strategies and caregiver education can play a crucial role in preventing and managing feeding difficulties in early childhood.

Keywords

Early
childhood,
Nutritional
behavior,
Responsive
feeding,
Stunting,
Undernutrition,
Wasting.

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Introduction

Early childhood, particularly the age group of 12- 59 months, represents a critical window for growth, development, and long-term health. Adequate nutrition during this period plays a vital role in shaping a child's physical, cognitive, and emotional development. However, feeding difficulties, ranging from picky eating and food refusal to poor appetite and inappropriate feeding practices—are commonly observed in young children (Dsouza et al., 2025; Hegazi et al., 2015). These issues can lead to inadequate dietary intake, growth faltering, and increased vulnerability to infections (Christian et al., 2023; Perera et al., 2022). Feeding practices, influenced by cultural beliefs, parental knowledge, and socio-economic status, significantly impacts a child's nutritional status. Children often exhibit certain inappropriate feeding behaviors that may negatively affect their nutritional intake and overall growth (Lokossou et al., 2021). These include a tendency to consume predominantly snack foods rather than balanced meals, eating while distracted by mobile phones or television, and displaying limited attention to food during mealtimes. In addition, some children engage in self-feeding but fail to complete the adequate portion of food offered. Selective or “picky” eating habits, where the child becomes highly choosy about food items, are also common. Such feeding practices can contribute to inadequate dietary intake and may predispose children to nutritional deficiencies over time (Sranacharoenpong et al., 2023; Ghimire & Saha, 2023; Ogouyemi-Hounto et al., 2021). Therefore, a comprehensive assessment of feeding problems and practices is essential to identify contributing factors and guide

interventions aimed at improving child nutrition and health outcomes. This study aimed to assess the occurrence and nature of feeding problems, evaluate current feeding practices, and understand their association with nutritional status among children aged 12-59 months.

Methodology

Study Design

The study was conducted to assess feeding difficulties and feeding practices among children aged 12-59 months in two southern districts of West Bengal (Hooghly and North 24 Parganas). These districts were selected due to their high population density and diverse socio-economic profiles, providing a suitable backdrop for studying early childhood feeding behaviors (Dey et al., 2025). The study included a total of 304 children aged between 12- 59 months along with their primary caregivers, mainly mothers.

Sampling Method

Participants were recruited using a simple random selection method. Households with children aged 12–59 months were first identified and eligible children were then randomly selected from the identified households.

Inclusion criteria

Children aged 12–59 months, residing permanently in the study area, and having documented proof of age were included in the study.

Exclusion criteria

Children younger than 12 months, those with congenital anomalies, physical or developmental disabilities, and those with

chronic illnesses likely to affect feeding practices or nutritional status were excluded.

Data collection

After obtaining informed consent, a predesigned questionnaire was used to collect the required data through direct interviews with mothers or primary caregivers. Data were collected on three major domains: sociodemographic details containing maternal education, paternal education, family type and family income; feeding practices like initiation of colostrum feeding, status of exclusive breastfeeding, and consumption of snack foods, and feeding difficulties such as food refusal, picky eating, low appetite, and behavioral issues during feeding (Ahmad & Mishra, 2022). Anthropometric assessments were carried out following WHO guidelines. Body weight was measured using a calibrated digital weighing scale (nearest to 0.1 kg), Body height was measured using an anthropometer set (nearest to 0.1 cm). The recumbent length was taken by using an infantometer for children under 2 years who are shorter than 85 cm in length. Head circumference, chest circumference, and mid-upper arm circumference (MUAC) were measured using a flexible, non-stretchable measuring tape. All measurements were taken with minimal clothing and no footwear. Z-scores for height-for-age (HAZ), weight-for-height (WHZ), and weight-for-age (WAZ) were calculated using WHO Anthro 3.2.2 to assess the nutritional status of the children.

Statistical Analysis

The collected data were entered and analyzed using Microsoft Excel and SPSS 20 software. Chi-square tests were performed

to find possible associations between feeding difficulties, feeding practices, and nutritional status.

Results

The present study included 304 children aged 12 to 59 months among whom 141 (46.4%) individuals were male and 163 (53.6%) were female. Table 1 presents the distribution of children by selected sociodemographic parameters. With respect to age groups, the majority of children were in the 48–59 months category (36.6%), followed by 12–23 months (25.3%) and 36–47 months (21.0%). Male children constituted 46.4% (n=141) and female children constituted 53.6% (n=163) of the study population. Approx three-fourths of mothers (75.3%) had attained secondary education, while 18.4% were graduates or above. Higher maternal education was more common among mothers of female children (22.0%) than those of males (14.1%), whereas illiteracy was slightly higher among mothers of male children (4.3% vs. 1.2%). Regarding father's education, the majority had completed secondary education, while 16.5% were graduated or above. Only 5.6% of fathers were illiterate and an equal proportion had primary education.

More than half of the children (57.0%) belonged to joint families, while 43.0% belonged to nuclear families. This indicates the predominance of joint family structures among the study participants. With respect to family income the majority of household (62.0%) had a monthly income between ten thousand and twenty thousand, followed by 15.0% with an income below ten thousand. Only 6.0% of families reported a monthly income above forty thousand.

Overall, the study population was predominantly characterized by children from families with secondary –educated parents, joint family structures, and monthly household incomes between ten thousand and twenty thousand.

Table 1 Distribution of the children according to the socio demographic characteristics

Parameters	Male (n= 141)		Female (n= 163)		Total (N= 304)	
	No	(%)	No	(%)	No	(%)
Age group (months)						
12- 23	31	(22.0)	46	(28.2)	77	(25.3)
24-35	28	(19.8)	24	(14.8)	52	(17.1)
36-47	25	(17.8)	39	(24.0)	64	(21.0)
48-59	57	(40.4)	54	(33.1)	111	(36.6)
Mothers education						
Illiterate	6	(4.3)	2	(1.2)	8	(2.7)
Primary	5	(3.6)	6	(3.8)	11	(3.6)
Secondary	110	(78.0)	119	(73.0)	229	(75.3)
Graduate and above	20	(14.1)	36	(22.0)	56	(18.4)
Fathers education						
Illiterate	6	(4.3)	11	(6.7)	17	(5.6)
Primary	9	(6.3)	8	(5.0)	17	(5.6)
Secondary	102	(72.3)	118	(72.3)	220	(72.3)
Graduate and above	24	(17.0)	26	(16.0)	50	(16.5)
Family Type						
Nuclear	62	(44.0)	68	(42.0)	130	(43.0)
Joint	79	(56.0)	95	(58.0)	174	(57.0)
Family Income						
<10,000 INR	23	(16.3)	24	(13.0)	47	(15.0)
10,000-20,000 INR	77	(55.0)	111	(68.0)	188	(62.0)
20,000-30,000 INR	15	(10.6)	15	(10.0)	30	(10.0)
30,000-40,000 INR	13	(9.2)	8	(5.0)	21	(7.0)
>40,000 INR	13	(9.2)	5	(3.0)	18	(6.0)

Table 2 presents sex-wise differences in feeding practices and problems among 304 children aged 12–59 months. Meal time duration showed a significant sex-based difference ($\chi^2=6.985$; $P = 0.030$). While the majority of children (77.6%) completed meals within 30 minutes to 1 hour, a higher proportion of females (17.8%) than males (13.4%) ate in less than 30 minutes, and

prolonged meal times (>1 hour) were also more frequent among females (8.5% vs. 4.2%). The frequency of snack intake was significantly associated with sex ($\chi^2=12.029$; $P = 0.017$). Overall, 39.1% consumed snacks 4–5 days per week, but daily (>5 days) intake was more common among males (30.4%) than females (6.1%).

Table 2 Sex-wise Distribution of Feeding Practices and Problems among Children Aged 12–59 Months

Parameters	Male (n= 141)		Female (n= 163)		Total (N= 304)		χ^2	P Value
	No	(%)	No	(%)	No	(%)		
Meal time Duration								
<30 minutes	19	(13.4)	29	(17.8)	48	(15.7)	6.985	0.030
30 minutes – 1 hour	116	(82.2)	120	(73.7)	236	(77.6)		
>1 hour	6	(4.2)	14	(8.5)	20	(6.5)		
Frequency of Snacks/Week								
<3 Days/Week	31	(22)	43	(30.4)	74	(24.4)	12.029	0.017
4-5 Days/Week	30	(21.3)	89	(54.6)	119	(39.1)		
>5 Days/Week	43	(30.4)	10	(6.1)	53	(17.5)		
None	37	(26.3)	21	(13)	58	(19.0)		
Exclusive Breast Feeding								
Yes	123	(87.2)	135	(83)	258	(84.7)	7.727	<0.005
No	18	(12.8)	28	(17.1)	46	(15.1)		
Self Feeder								
Yes	25	(17.8)	132	(81)	157	(51.7)	53.703	<0.001
No	116	(82.2)	31	(19.0)	147	(48.3)		
Colostrum given								
Yes	99	(70.2)	133	(95)	232	(76.3)	53.722	<0.001
No	42	(29.8)	30	(18.4)	72	(23.7)		
Feeding Problem								
Limited Appetite	41	(29)	96	(59)	137	(45)	16.353	0.003
Little interest in food	15	(10.6)	17	(10.4)	32	(10.5)		
Highly selective eating	18	(12.8)	11	(6.8)	29	(9.5)		
Irrational fear of eating	5	(3.6)	2	(1.2)	7	(2.3)		
No Problem	62	(44)	37	(22.7)	99	(32.5)		
Feeding Site								
Child Table	0	(0)	6	(3.7)	6	(2)	149.63	<0.001
Front of TV	20	(14.1)	11	(6.7)	31	(10.1)		
No Definite place	51	(36.1)	14	(8.5)	65	(21.3)		
Fed on the floor	17	(12.0)	50	(30.6)	67	(22.0)		
Front of the phone	51	(36.1)	73	(45)	124	(41)		
On the bed	2	(1.4)	9	(5.5)	11	(3.6)		

In contrast, females were more likely to have snacks 4–5 times per week (54.6% vs. 21.3%). Exclusive breastfeeding practices showed a significant difference ($\chi^2=7.727$; $P=0.005$). Although the majority (84.7%) had been exclusively breastfed, the prevalence

was higher among males (87.2%) than females (83%). A marked sex disparity was observed in self-feeding ($\chi^2=53.703$; $P<0.001$). Most females (81%) were self-feeders compared to only 17.8% of males, while dependency on others was higher

among boys (82.2%) than girls (19%). Colostrum feeding was widely practiced (76.3%) and showed significant variation by sex ($\chi^2=53.722$; $P < 0.001$). Almost all females (95%) received colostrum compared to 70.2% of males. Feeding problems were significantly associated with sex ($\chi^2=16.353$; $P = 0.003$). Limited appetite was more frequent among females (59%) than males (29%). Selective eating and fear of eating were less common, while the absence of feeding problems was higher in boys (44%) than girls (22.7%). Feeding site also showed a strong association with sex ($\chi^2=149.63$; $P < 0.001$). Most children (41%) were fed in front of a phone, though distribution

varied. Males were more often fed at no definite place (36.1%) or in front of the TV (14.1%), whereas females were more often fed on the floor (30.6%) or in bed (5.5%). Feeding at a child's table was reported only among females (3.7%). Feeding practices and problems differed significantly between sexes, with females demonstrating higher rates of self-feeding, colostrum's intake, and limited appetite, while males were more dependent on irregular snack consumption and lacked defined feeding sites. These findings emphasize the need for sex-sensitive strategies to promote healthy feeding practices among early childhood.

Table 3 Distribution of Nutritional Status of Children (12–59 Months) by Sex Based on WHO Z-scores

Nutritional Status	Male (n=141)		Female (n=163)		Total (N=304)	
	No	(%)	No	(%)	No	(%)
Weight for age (Z core)						
Normal (>-2SD)	107	(75.9)	131	(80.4)	238	(78.2)
Moderate Underweight (≤ -2 SD to ≥ -3 SD)	22	(15.6)	14	(8.6)	36	(11.8)
Severe underweight (< -3 SD)	12	(8.5)	18	(11.0)	30	(10.0)
Height for age (Z core)						
Normal (>-2SD)	127	(90.0)	137	(84.0)	264	(86.7)
Moderate Stunting (≤ -2 SD to ≥ -3 SD)	7	(5.0)	14	(8.6)	21	(7.0)
Severe Stunting (< -3 SD)	7	(5.0)	12	(7.4)	19	(6.3)
Weight for Height (z score)						
Normal (>-2SD)	103	(73.0)	130	(79.8)	233	(76.7)
Moderate wasting (≤ -2 SD to ≥ -3 SD)	24	(17.0)	18	(11.0)	42	(13.8)
Severe Wasting (< -3 SD)	14	(10.0)	15	(9.2)	29	(9.5)

Table 3 presents the distribution of nutritional status among children aged 12–59 months, assessed using WHO Z-score classifications, revealed notable sex differences. Around 78.2% were normal for weight-for-age, while 11.8% were moderately underweight and 10.0% severely underweight, with moderate

underweight being more common in males and severe underweight slightly higher in females. For height-for-age, 86.7% were normal, whereas 7.0% were moderately and 6.3% severely stunted; stunting was relatively higher among females. In terms of weight-for-height, 76.7% were normal, 13.8% moderately wasted, and 9.5% severely wasted, with wasting more prevalent in males.

Table 4 Association of Feeding Practices with Nutritional Status (Stunting, Underweight, and Wasting) among Children Aged 12–59 Months

Feeding Practices	Stunting (40)		Underweight (66)		Wasting (71)	
	No	(%)	No	(%)	No	(%)
Meal time Duration						
<30 minutes	8	(20.00)	19	(28.8)	14	(19.8)
30 minutes – 1 hour	32	(80.00)	47	(71.2)	57	(80.2)
Chi square	6.912		9.439		4.418	
P value	0.321		0.620		0.620	
Frequency of Snacks/Week						
<3 Days/Week	7	(17.0)	5	(7.6)	26	(36.7)
4-5 Days/Week	12	(30.0)	36	(54.6)	15	(21.1)
>5 Days/Week	12	(30.0)	13	(19.7)	14	(19.8)
None	9	(23.0)	12	(18.1)	16	(22.6)
Chi square	15.105		10.228		8.869	
P value	0.236		0.249		0.714	
Exclusive Breast Feeding						
Yes	17	(42.5)	28	(42.4)	44	(62.0)
No	23	(57.5)	38	(57.6)	27	(38.0)
Chi square	0.161		3.854		0.493	
P value	0.984		0.146		0.920	
Self Feeder						
Yes	9	(22.5)	17	(25.8)	15	(21.1)
No	31	(77.5)	49	(74.2)	56	(78.9)
Chi square	1.704		1.441		2.118	
P value	0.636		0.487		0.548	
Colostrum given						
Yes	28		29		36	
No	12		37		35	
Chi square	0.241		1.484		3.065	
P value	0.881		0.604		0.216	
Feeding Problem						
Limited Appetite						
Little interest in food	9	(22.5)	39	(59.0)	15	(21.1)
Highly selective eating	15	(37.5)	15	(22.7)	33	(46.4)
Irrational fear of eating			6	(9.0)	4	(5.7)
No feeding problem	5	(12.5)				
Chi square	4	(10)	1	(1.5)	2	(2.8)
P value	7	(17.5)	5	(7.6)	17	(24.0)
	137.67	<0.01	129.405	<0.01	23.153	0.026
Feeding Site						
Child Table	3	(7.5)	6	(9.0)	3	(4.3)
Front of TV	9	(22.5)	10	(15.1)	10	(14.0)
No Definite place	5	(12.5)	9	(13.7)	18	(25.4)
Fed on the floor	9	(22.5)	21	(32.0)	10	(14.0)
Front of the phone	10	(25.0)	16	(24.2)	27	(38.0)
On the bed	4	(10.0)	4	(6.0)	3	(4.3)
Chi square	16.291		13.889		13.465	
P value	0.361		0.178		0.566	

Table 4 presents the association between feeding practices and the nutritional status of children in terms of stunting and underweight. Whereas other practices such as meal time duration, snack frequency, breastfeeding, colostrums feeding, and feeding site did not demonstrate significant associations.

Discussion

Various forms of childhood malnutrition including as undernutrition and over nutrition, remain prevalent in India, and several approaches are being investigated to address the issue. (Mukherjee et al., 2014; Banerjee et al., 2014; Chatterjee et al., 2014). The present study assessed the nutritional status and feeding practices of children aged 12–59 months and examined the association between feeding practices and nutritional status. Overall, nearly one-third of children were undernourished, with the prevalence of undernutrition progressively increasing with age, peaking among those aged 48–59 months. This trend highlights the cumulative effect of inadequate nutrition and suboptimal feeding practices over time, consistent with previous evidence that growth faltering becomes more evident in later preschool years when nutritional requirements increase but feeding challenges often persist. (Smith et al., 2024). Mothers with higher level of education are generally more aware of dietary diversity, hygiene, and responsive feeding, thereby contributing to improved nutritional outcomes in children. (Rezaeizadeh et al., 2024; Tariqujjaman et al., 2022; Bado & Susuman, 2016).

Feeding practices showed significant sex-based variations. Females demonstrated healthier behaviors, including higher rates of self-feeding and colostrum intake,

whereas males were more likely to exhibit irregular snack consumption and be fed without a definite place. These patterns may reflect gender-differentiated parental practices or cultural norms influencing child-rearing. Notably, limited appetite was reported more frequently among females, which may indicate both biological and behavioral dimensions of feeding difficulties. The finding that most children were fed in front of a phone or television raises concerns, as distracted feeding is associated with lower satiety recognition, poor diet quality, and increased risk of undernutrition or overweight (Sharma & Lal, 2023; Hadelar et al., 2022).

In terms of nutritional outcomes, underweight and wasting were more common among males, while severe underweight and stunting were relatively higher among females. These sex differences may be attributed to variations in feeding behaviors and parental attention. The overall prevalence of stunting, wasting, and underweight in this study remains a major public health concern, aligning with national data showing persistent undernutrition among Indian children aged 12–59 months despite ongoing interventions (Woldehanna et al., 2023). According to a study analysis of NFHS (National Family Health Survey) data from 2006 to 2016 revealed that for children aged 2–5 years in 2016, the prevalence of stunting was marginally higher among girls (53.9%) in comparison to boys (52.4%) (Murthy & Aggarwal, 2022). Interestingly, when feeding practices were directly examined in relation to nutritional status, most practices—including meal time duration, snack frequency, breastfeeding, and colostrum intake—did not demonstrate significant ($P > 0.05$) associations. This may

suggest that while these practices differ between sexes, their direct impact on anthropometric outcomes could be moderated by multiple other factors such as infection, dietary quality, or household food security. However, feeding problems such as limited appetite and selective eating showed significant associations with nutritional deficits, emphasizing the role of child-level behavioral factors in growth outcomes (Kamaruzaman et al., 2024; Ahmad & Mishra, 2022). Taken together these findings highlight the critical role of feeding difficulties and feeding practices in shaping the nutritional status of young children.

Similar study findings have been reported from East Azerbaijan, Iran, where a burden of malnutrition and inappropriate feeding practices was observed among young children (Abbasalizad Farhangi, 2016). Evidence from a study conducted in Solapur, Maharashtra, also demonstrated a high burden of malnutrition alongside inadequate feeding practices among the children under than 5 years of age. This study observations further highlighted the necessity of promoting optimal breastfeeding and complementary feeding practices to improve child nutritional status (Jidge et al., 2022). Similar observations were reported in Hyderabad, Telangana, where undernutrition and poor feeding practices were common among young children; highlighting the need for community-level education and support for caregivers to promote better nutritional outcomes (Syed & Das, 2016).

Interventions should focus on promoting structured meal environments, discouraging distracted feeding, and supporting responsive feeding practices.

Moreover, enhancing maternal education and awareness remains a critical strategy to improve both feeding practices and nutritional outcomes. Finally, the observed sex differences suggest that nutrition programs should adopt gender-sensitive approaches to ensure equitable health benefits across boys and girls. The results emphasize the need to improve caregivers' knowledge of age-appropriate feeding and to observe feeding difficulties at an early stage. Providing regular nutrition counselling and monitoring feeding behaviours through routine child health services may contribute to improved nutritional status among young children and help prevent undernutrition (Haque et al., 2023).

Limitations

The cross-sectional design of the study limits casual inference and the findings are specific to the children of the specified region, restricting generalizability to other ethnic or regional groups. The primary objective of the study was to examine the associations between feeding practices and nutritional outcomes using descriptive statistics and bivariate analysis. Future studies with multivariable approaches are suggested to understand the independent predictors of nutritional status in this age group.

Conclusion

Nearly one-third of children in early childhood were undernourished, with nutritional deficits rising progressively with age. Notable associations were identified between sex, feeding practices, and nutritional outcomes among children. Females showed higher rate of self-feeding and colostrum intake, whereas males

exhibited greater snack dependency and irregular feeding sites. Anthropometric indices revealed persistent underweight, stunting, and wasting with sex-specific variations. Targeted interventions aimed at improving maternal nutrition knowledge, promoting age-appropriate feeding practices, and sex-sensitive nutrition strategies are essential to curb malnutrition in early childhood.

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Competing Interests

The authors declare no competing interests.

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