

## Zero-Hunger: An Effort to Study Infant and Young Child Feeding Practices among Mothers and Health Status Assessment of Children Aged 6 Months to 2 Years in Urban Slums of South India

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### Abstract:

**Background:** Under nutrition is a major cause of children deaths, accounting for nearly 45% of all under-five deaths worldwide. Optimal nutrition during the first 2 years of a child's life is very important. Around 6 months of age, an infant's need for energy and nutrition starts to exceed and cannot be met only through breast feeding. Hence, complementary foods must be introduced. Urban slums being one of the high priority area for providing the healthcare, this study aims at assessing the IYCF practises among the women residing in urban slums and the various challenges faced by them. The objective of the study are to assess the Infant and Young child feeding practises among women of children aged 6-23 months and To know the various socio-demographic factors associated with the IYCF practises.

**Methodology:** A Cross-sectional study was conducted for a period of 6 months in urban field practise area. The sample size was computed to be 140. House to house survey was done and mothers residing in urban slums with at-least 1 child aged between 6 months to 2 years were included in the study. Data was collected by one to one interview, using a pre-tested semi-structured questionnaire. Mothers were enquired on IYCF practises and anthropometric assessment of child was carried out. Data is presented in percentages, ratios and proportions. Z-scores were calculated and presented as mean and standard deviation.

**Results:** Majority, 79.3% were aged 21 to 30 years 74.3% were of Hindus, 55.7% were in nuclear families and 46.4% belonged to upper or upper-middle class. 16.5% of mothers were not aware of early initiation of breastfeeding, however 80% of mothers opined of exclusive breastfeeding up to 6 months. However, 59% of mothers practised early initiation and 52.8% of mother's exclusive breastfeed up to 3 to 6 months. 41% started complementary feeding at 6 months, while 44.3% had administered water before 3 months. Only 27.2% were practising recommended minimum meal diversity, while only 61.5% met the minimum meal frequency required. On health status assessment of children, majority were normally nourished. i.e., 11.4% were wasted and 8.6% were stunted by Z-scores.

**Conclusion:** There is considerable knowledge deficiencies regarding early initiation, providing adequate breastfeeding. The knowledge regarding minimum meal diversity and minimum meal frequency was inadequate. However, on examination, the nutritional assessment of children was near normal.

**Keywords:** IYCF, MDD, MMF, Urban Slums.

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### Introduction

Undernutrition is a major cause of children deaths, accounting for nearly 45% of all under-five deaths worldwide. Optimal nutrition during the first 2 years of a child's life is very important. The statistics as per National Family Health Survey 5, (NFHS-5), under 5 mortality rate of India is 41.9 per 1,000 live births, and among children under 5

years 35.5% are stunted (height-for-age), 19.3% are wasted (weight-for-height) and 32.1% are underweight (weight-for-age) [1].

The health outcomes of a child are directly proportional to their feeding practices, which are, in-turn, dependent on the knowledge and practices of the mother. The first two years of a child's life

are crucial to ensure appropriate growth and development. Malnutrition during this period results in a series of problems, beginning with reduced weight for age and stunting, progressing to the inability to achieve potential height in adulthood, and reduced capacity for physical work, which ultimately has implications for national development [2].

According to the recommendations by WHO and UNICEF, a child should be initiated with breastfeeding within 1 hour of birth, followed by exclusive breastfeeding for the first 6 months of life and introduction of nutritionally-adequate and safe complementary solid foods at 6 months, along with continued breastfeeding up to 2 years of age and beyond<sup>3</sup>. Around 6 months of age, an infant's need for energy and nutrition starts to exceed and cannot be met only through breast feeding. Hence, complementary foods must be introduced. If not introduced at this age, it can lead to under-nourishment. The nutritional needs for growth and development in children of 6-23 months of age are greater per kilogram body weight than at any other time in life<sup>4</sup>.

Minimum dietary diversity (MDD) recommends that the child should consume foods and beverages from at least five of the eight food groups. The eight food groups are -breast milk; grains, roots, and tubers; legumes and nuts; dairy products (e.g. milk, yogurt, and cheese); flesh foods (e.g. meat, fish, poultry, liver, or other organs); eggs; vitamin A-rich fruits and vegetables; other fruits and vegetables<sup>5</sup>. And the minimum meal frequency (MMF), indicates how frequently child is fed using liquids, semi-solid and solid foods. Along with this, there should be good hygiene and proper food handling.

The statistics of the Infant and young child (IYCF) practices in today's world is quiet far from the required targets. Even with the huge medical advancements in treating diseases, yet the basic preventable solution of providing adequate nutrition among children remains a grey area, especially in down-trodden women of urban slums. These IYCF practices can only be followed properly when there is awareness and knowledge among the mothers and their family members and they have a direct impact on the health status of the child. Urban slums being one of the high priority area for providing the healthcare, this study aims at assessing the IYCF practises among the women residing in urban slums and the various challenges faced by them.

### Objectives

1. To assess the Infant and Young child feeding practises among women of children aged 6-23 months.

2. To evaluate the impact of IYCF practices on the child's health status.
3. To know the various socio-demographic factors associated with the IYCF practises.

### Materials & Methods

A Cross-sectional study was conducted for a period of 6 months from March 2024 to August 2024 in urban field practise area of department of community medicine of Shri Atal Bihari Vajpayee Medical College and Research Institute, Shivajinagar, Bengaluru. Sample size was calculated using the formula,  $Z = (1.96)^2 pq/d^2$

For p = the NFHS-5 value for total children aged 6-23 months in urban population in 11.4% and is taken for calculation; q= (100-p); d = absolute precision value of 5%, the total study sample size was computed to be 140.

Urban slums of our field practise area was visited, house to house survey was done and enquired for child aged 6 months to 2 years. Mothers residing in urban slums with at-least 1 child aged between 6 months to 2 years and who is living there for at-least more than 6 months were included in the study. Only one youngest child per household was assessed, for inclusion of more households and mothers. Consecutive households were visited until the required sample size was met. Informed written consent was obtained from all the participants. Exclusion criteria were children under 6 months of age, Children who are critically ill and those not consenting. Hence, a total of 140 mothers and 140 children were assessed.

Data was collected by one to one interview, using a pre-tested semi-structured questionnaire. The questionnaire was finalised after pilot testing on 10 women. The questionnaire consisted of three parts, **Part 1-** Socio-demographic details of the mothers and child; **Part 2-** Questions based on the WHO indicators for Infant and young child feeding practises; Knowledge and practises; **Part 3-** Health status assessment of the child by examination (height, weight, and anthropometric measurements). Z-scores were calculated for the child for assessing their nourishment status, using WHO Anthroplus free software.

### Statistical Analysis

Data was entered in MS excel, analysed using SPSS v.23. Data is presented in percentages, ratios and proportions. Z-scores were calculated and presented as mean and standard deviation

### Results

Majority, 79.3% of study population mothers were in the age group of 21 to 30 years, followed by 31 to 40 year. 74.3% were of Hindu religion and 55.7% were in nuclear families with no family support. 46.4% belonged to upper or upper-middle

class of modified B.G Prasad Classification and year. (Table no 1)  
majority, 63.6% had a married life of less than 1

**Table 1: Showing distribution according to Socio-demographic details**

Sl. no	Parameters	Number	Percent (%)	
1	Age (in years)	20 years and below	9	6.4
		21- 30 years	111	79.3
		31- 40 years	20	14.3
		<b>Total</b>	<b>140</b>	<b>100</b>
2	Religion	Hindu	104	74.3
		Muslim	20	14.3
		Christian	16	11.4
		<b>Total</b>	<b>140</b>	<b>100</b>
3	Type of family	Joint	54	38.6
		Nuclear	78	55.7
		Extended	8	5.7
		<b>Total</b>	<b>140</b>	<b>100</b>
4	Socio-economic status	Upper/ Upper middle	65	46.4
		Middle	43	30.7
		Lower/ Lower middle	32	22.9
		<b>Total</b>	<b>140</b>	<b>100</b>
5	Married life (in years)	<1 year	89	63.6
		1 year	25	17.9
		2 years	22	15.7
		3 years	4	2.9
		<b>Total</b>	<b>100</b>	<b>100</b>

The questions on knowledge regarding infant and young child feeding practises were asked to all the mothers. 16.5% of mothers were not aware of early initiation of breastfeeding, however 80% of mothers opined of exclusive breastfeeding up to 6 months is the recommended norm. Majority, 95% of mothers were not aware of what pre-lacteal feeds

are were not sure of whether it has to be given or no, however they knew that colostrum has to be fed to the newborn. Knowledge on WHO recommended minimum meal diversity was lacking in majority, 61.4% but the knowledge of required minimum meal frequency was correct among 67.1%. (Table no 2)

**Table 2: Showing Knowledge on Infant and Young Child Feeding**

Sl. no	Knowledge questions	Number	Percent (%)	
1	How early should the breastfeeding be initiated?	Immediately	11	7.8
		<1hr	63	45
		1hr to 2 hrs	37	26.5
		>2 hrs	6	4.2
		Not aware	23	16.5
	<b>Total</b>	<b>140</b>	<b>100</b>	
2	For how long to exclusively breastfed?	<6 months	3	2.1
		Up to 6 months	112	80
		1 year and above	6	4.3
		Not aware	19	13.6
		<b>Total</b>	<b>140</b>	<b>100</b>
3	Do you know what pre-lacteal feeds are?	Yes	7	5
		No	133	95
		<b>Total</b>	<b>140</b>	<b>100</b>
4	Should pre-lacteal feeds be given?	Yes	10	7.2
		No	45	32.8
		Don't know	84	60
		<b>Total</b>	<b>140</b>	<b>100</b>
5	Should colostrum be given?	Yes	138	98.6
		No	2	1.4

		<b>Total</b>	<b>140</b>	<b>100</b>
6	Knowledge on WHO Minimum Meal Diversity (how many groups of food to be included in child meal)	Yes	54	38.6
		No	86	61.4
		<b>Total</b>	<b>140</b>	<b>100</b>
7	Knowledge on Minimum Meal Frequency	Yes	94	67.1
		No	46	32.9
		<b>Total</b>	<b>140</b>	<b>100</b>

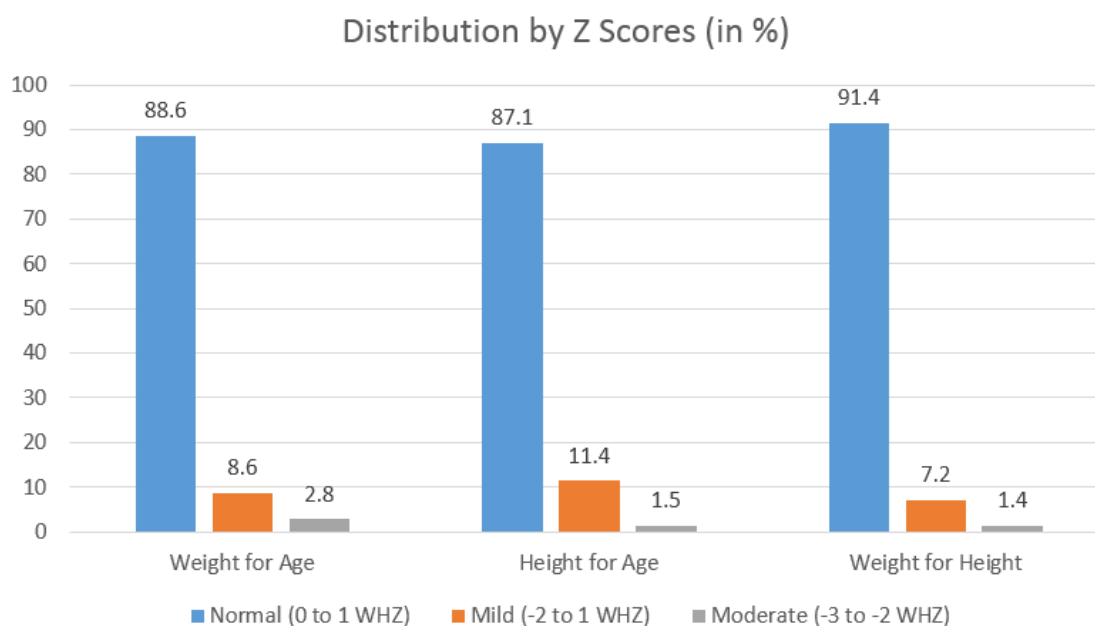
On assessment of practises followed by mothers, early initiation of breastfeeding i.e immediately and within 1 hour was seen amongst 59% of mothers, and 52.8% of mother's exclusive breastfeed up to 3 to 6 months. 10% of mothers administered honey and sugar water to the new-borns before starting breastfeeding. And 91.4% gave colostrum to the

new-borns, while 8.5% did not. 41% started complementary feeding at 6 months, while 44.3% had administered water before 3 months. Only 27.2% were practising recommended minimum meal diversity, while only 61.5% met the minimum meal frequency required. (Table no 3)

**Table 3: Showing Infant and Young Child Feeding practises actually followed**

Sl. no	Practices questions	Number	Percent (%)
1	When did you initiate breastfeeding?	Immediately	30.73
		<1hr	28.57
		1hr to 2 hrs	29.28
		>2 hrs	11.42
		<b>Total</b>	<b>140</b>
2	For how long did you exclusively breastfed?	3 months	4.4
		3 to 6 months	52.8
		>6 months	42.8
		<b>Total</b>	<b>140</b>
3	Did you administer any pre-lacteal feeds?	Yes	10
		No	90
		<b>Total</b>	<b>140</b>
5	Did you give colostrum to the new-borns?	Yes	91.42
		No	8.58
		<b>Total</b>	<b>140</b>
6	Practise on Minimum Meal Diversity (how many groups of food to be included in child meal)	Yes	27.2
		No	72.8
		<b>Total</b>	<b>140</b>
7	Practise on Minimum Meal Frequency (Liquid, semi-solid, solid)	Yes	61.5
		No	38.5
		<b>Total</b>	<b>140</b>
8	When did you start complementary feeding	<6 months	30
		At 6 months	41.4
		>6 months	28.6
		<b>Total</b>	<b>140</b>
9	When did you administer water to the child?	<6 months	44.3
		At 6 months	30
		>6 months	25.7
		<b>Total</b>	<b>140</b>

The health status assessment and calculation of Z-scores using WHO free Anthroplus software, showed that majority were normally nourished. i.e, 88.6% were normal weight for age (WFA), 87.1% were normal height for age (HFA) and 91.4% were normal weight for height (WFH). (Chart no 1). Mean Z-scores being  $1.8 \pm 0.04$  for WFA,  $1.6 \pm 0.08$  for HFA and  $1.7 \pm 0.03$  for WFH respectively.



**Chart no 1: Showing distribution according to their nourishment status by z-scores**

### Discussion

Majority, 79.3% of study population mothers were in the age group of 21 to 30 years, 74.3% were of Hindu religion and 55.7% were in nuclear families with no family support. 46.4% belonged to upper or upper-middle class of modified B.G Prasad Classification. (Table no 1)

Similarly a study by Thomson c davis et al<sup>6</sup> on perception and practise of infant and young child feeding practises among rural Karnataka mothers, showed that, 60.4% of study subjects were in the age group of 20 to 25 years, 90% were Hindu by religion, while 61% belonged to upper class of socio-economic status.

16.5% of mothers were not aware of early initiation of breastfeeding, however 80% of mothers opined of exclusive breastfeeding up to 6 months. 95% of mothers were not aware of what pre-lacteal feeds but they knew that colostrum has to be fed to the new-born. Knowledge on WHO recommended minimum meal diversity was lacking in majority, 61.4%, but the knowledge of required minimum meal frequency was correct among 67.1%. (Table no 2). Similarly, a study by Saha Rakhi et al [7], on knowledge and practises among mothers on under-5 children in west Bengal, also showed that, 83.8% of mothers had knowledge of exclusive breastfeeding upto 6 months, 68.8% responded that exclusive breastfeeding to be done until 6 months, while knowledge regarding MMF and MMD was among only 21% and 22% respectively. 41% started complementary feeding at 6 months, while 44.3% had administered water before 3 months. The key knowledge gap areas are starting of complementary feeding and about minimum meal

diversity and frequency were very much evident among the study population.

Early initiation of breastfeeding hour was seen amongst 59% of mothers, and 52.8% of mother's exclusive breastfeed up to 3 to 6 months. 10% of mothers administered honey and sugar water to the new-borns before starting breastfeeding. And 91.4% gave colostrum to the new-borns and 27.2% were practising recommended minimum meal diversity, while only 61.5% met the minimum meal frequency required. (Table no 3)

A study by Shweta khandelwal et al [8] on IYCF in an Indian maternal child birth at belagavi showed that, 77.9% of women initiated breastfeeding within 1 hour, honey was provided to 3.9% of infants and sugar water to 3.4%. And MMF and MDD was achieved among 94.4% and 57.4% respectively. However, in our study there was considerable delay in initiation, not getting milk was cited as the most common reason. However, after assurance from the hospital staff, breastfeeding was initiated

Similarly a study by Thomson C Davis et al [6] on perception and practise of infant and young child feeding practises among rural Karnataka mothers, showed that, 92% of mothers fed colostrum to the newborns and minimum dietary diversity was followed by 79.04% of the study subjects. Providing knowledge regarding proper and adequate nutrition can help in good nutritional practises amongst women and majority of mothers are receptive for the same. Many mothers are unaware of food diversities available for children and the required number to be administered

On health status assessment of children, majority were normally nourished. i.e., 11.4% were wasted and 8.6% were stunted by Z-scores. (Chart no 1). A study by Shalu r choudhary et al [9], on IYCF practises and its association with nutritional status among urban slums of Ahmadabad, showed that majority were malnourished, 65.2% stunted and 11.9% were wasted. The nutritional status of children were comparatively better amongst the study population, this maybe attributed to supplementary nutrition provided by nearby anganwadis and constant surveillance of children for Protein-energy malnutrition.

### Conclusion

The present study confirms that, there are considerable knowledge deficiencies regarding early initiation, providing adequate breastfeeding. The knowledge lacunae regarding minimum meal diversity and minimum meal frequency was maximum, as it was not heard of by many mothers and this could have a potential influence on the overall nutritional care provided to the children. The infant and young child practises amongst mothers were not up to the mark. However, on examination, the nutritional assessment of children were near normal. The current nutritional programs addressing the nutritional status stands beneficial.

### Recommendation

A detailed follow-up study on qualitative assessment of nutrition among urban slums can provide more insights to the existing knowledge. Focussed group discussions among the mothers and imparting health education as an intervention regarding adequate nutrition to children can be carried out.

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