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Original Research Article

A study on nutritional status of preschool children and knowledge with special references to breastfeeding practice in urban area

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ABSTRACT

Background: The nutritional status of preschool children is a critical indicator of their overall health and development. Breastfeeding provides best start of life to babies as well as improves the health of mothers and babies. Objectives were to assess the nutritional status of preschool children and to Investigate the impact of breastfeeding practices on children's nutritional outcomes and breastfeeding practices of their mothers.
Methods: This cross-sectional study was conducted in an urban slum area and involved a sample of preschool children aged 3 to 6 years. Complete enumeration of children of 3-6 years age group was done. Nutritional status was assessed through anthropometric measurements, including height, weight and mid upper arm circumference. Data on breastfeeding practices were collected through structured interviews. Data was analysed using MS excel and chi-square statistical tests was applied.
Results: There were 334 study participants of which 7.5% had stunting and 62.87% were underweight. It was found that 18.56% had history of low birth weight. 90.12% were exclusively breastfed and breastfeeding was continued up to 2 years for 28.14% and more than 2 years for 71.86% children. It was also found that history of low birth weight of children is significantly associated with malnourishment ($p \leq 0.05$).
Conclusions: The study revealed that a substantial proportion of preschool children in the urban area were experiencing malnutrition. The breastfeeding practices were fair among the mothers of the children. Targeted education and awareness programs to enhance the nutrition can improve the overall health of preschool children in the urban setting.

Keywords: Malnutrition, Pre-school, Breastfeeding, Low birth weight

INTRODUCTION

The nutritional status of preschool children is a critical indicator of their overall health and development. The growth of children is largely affected by two important factors- malnutrition and infections.

Deficiencies, excesses, or imbalances in an individual's energy and/or nutrient consumption are referred to as malnutrition. Three major categories of conditions are covered by the term malnutrition: undernutrition, which includes wasting (low weight for height), stunting (low height for age), and underweight (low weight for age); micronutrient-related malnutrition, which comprises micronutrient excess or deficiencies (a lack of essential vitamins and minerals); and obesity, excess weight, and noncommunicable diseases linked to diet (including diabetes, heart disease, stroke, and some types of cancer).

1.9 billion adults worldwide were overweight or obese in 2014, compared to 462 million underweight adults. 37 million children under the age of five were overweight or obese in 2022, while an anticipated 149 million children under the age of five suffered from stunting. Undernutrition is a factor in about half of the deaths of children under the age of five. These primarily emerge in countries with low and moderate incomes.[1]

In India especially, malnutrition is a major problem of public health concern. According to the global hunger index 2022 report, the population's prevalence of undernutrition is 16.3%, while the rates of child stunting, child wasting, and child mortality are 35.5%, 19.3%, and 3.3%, respectively.[2]

The world health organization defines low birth weight as less than 2500 grams at birth. Prematurity, intrauterine growth restriction, or both might result in low birth weight. It is intimately linked to several adverse health consequences, including stunted growth and cognitive development, foetal and neonatal mortality and morbidity, and noncommunicable diseases (NCDs) in later life. Compared to heavier infants, low birth weight babies have a nearly 20 times higher chance of mortality.[3]

Breastfeeding provides best start of life to babies as well as benefits the health of both mothers and babies. Human breastmilk provides an infant with optimal nourishment at a period when gene expression is being fine-tuned for life, making it possibly the most specific and individualized medication the child will ever receive.[4] It is secure, hygienic, and loaded with antibodies that help fend off a host of common kid ailments. For the first few months of life, breastmilk supplies all the energy and nutrients an infant requires. It also meets up to half or more of a child's nutritional demands in the second half of the first year and up to one third in second year of life.[5]

For the first six months of life, a baby ought to be exclusively breastfed to achieve ideal growth, development, and health. After that, babies should continue to be breastfed for at least two years, or longer, while receiving safe, supplementary foods that fulfil their changing nutritional needs.[6]

METHODS

The present cross-sectional study was conducted is an urban slum area in Maharashtra. The duration of the study was 1 year, from January 2021 to January 2022. Approval was obtained from institutional ethics committee prior to conducting the study. All the children of age group 3 to 6 years in the area were included in the study. Line listing of children of age group 3-6 years was done from the records of Anganwadi. Accordingly, house to house survey was done. A total of 334 study participants took part in the study. The children were clinically examined. The sociodemographic details household details and knowledge and practices of mothers on breastfeeding were recorded using a pretested questionnaire. Data was entered in MS excel and Chi-square statistical test was applied. All data is represented as graphs and tables. The mothers were also educated on the importance of breastfeeding, complementary feeding and child care.

RESULTS

A total of 334 children and their mothers took part in the study of which 168 (50.29%) were girls and 166 (49.71%) were boys, 161 (48.2%) belonged to the age group of 3 to 4 years, 133 (39.82%) in the age group 4 to 5 years and 40 (11.97%) in the age group of 5-6 years. The mean age of the children was found to be 4.19 years. Figure 1 and 2 shows this distribution.

Figure 1 pie chart showing gender wise distribution of study participants. (n=334).

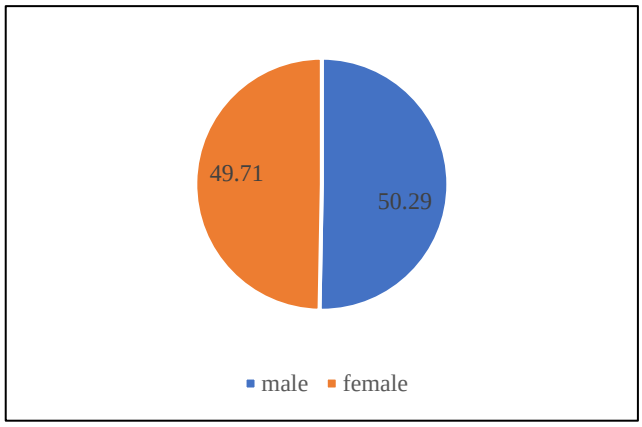

Figure 1: Gender.

Figure 2 pie chart showing age wise distribution of study subjects, (n=334).

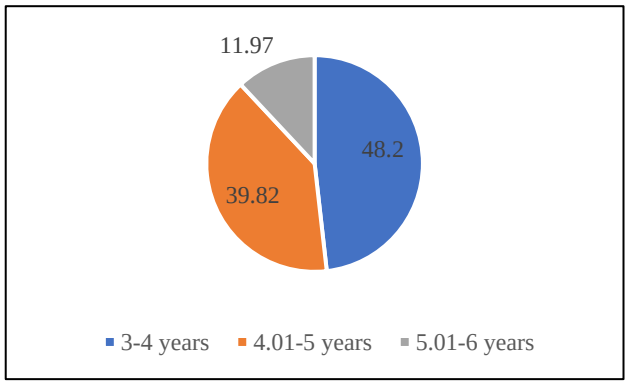

Figure 2: Age.

The 62 (18.56%) children had history of low birth weight.

The prevalence of malnutrition was found to be noticeable among the study participants, 25 (7.48%) were stunted, 210 (62.87%) were underweight, 143 (42.81%) were wasted ad 105 (31.43%) had malnourishment with

respect to mid upper arm circumference (MUAC). The distribution is depicted in Figure 3.

Figure 3 bar diagram showing prevalence of malnutrition among study subjects, (n=334).

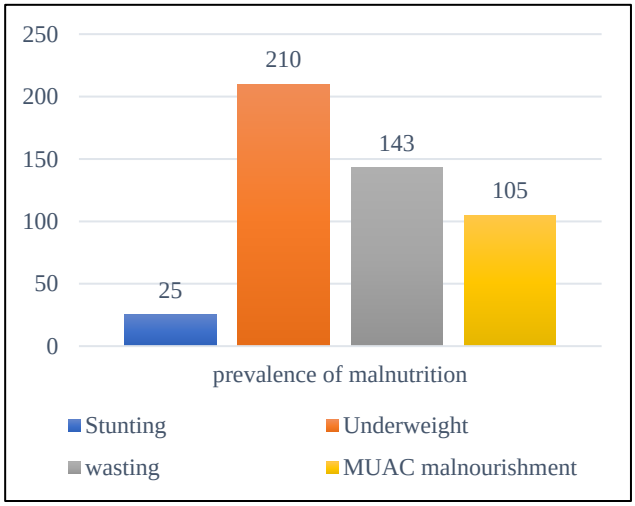

Figure 3: Prevalence of malnutrition.

In the age group of 3 to 4 years, 57 (35.4%) were malnourished with respect to mid upper arm circumference, 13 (8.07%) were stunted, 93 (57.8%) were underweight and 105 (65.2%) were wasted. In the age group of 4 to 5 years, 38 (28.6%) were malnourished with respect to MUAC, 10 (25.00%) stunted, 90 (67.70%) were underweight and 72 (54.10%) were wasted. In the age group of 5-6 years, 10 (25.00%) were malnourished with respect to MUAC, 2 (5%) were stunted, 27 (67.50%) were underweight and 14 (35.00%) were wasted.

Among the total 168 boys, 55 (32.7%) were malnourished with respect to MUAC, 14 (8.33%) were stunted, 100 (59.50%) were underweight and 68 (40.50%) were wasted. Among 166 total girls, 50 (30.10%) were malnourished with respect to MUAC, 11 (6.63%) were stunted, 110 (66.30%) were underweight and 75 (45.20%) were wasted. Table 1 shows the distribution.

The breastfeeding practices of the mothers of the study subjects were remarkably fair, 301 (90.12%) of the total children were exclusively breastfed, 295 (71.86%) of the children were breastfed for more than 2 years and 39 (28.14%) were breastfed till 2 years only (Table 2).

A significant association was found between birth order of study subjects and stunting (p=0.02) and wasting (p=0.03) respectively. Another significant association was found between history low birth weight and stunting (p=0.0197) and underweight (p=0.00133). Continued breastfeeding more than 2 years and stunting (p=0.022) and wasting (p<0.001) were also found to be significantly associated. Table 3 shows the distribution.

Table 1: Age and gender wise distribution of the study population in relation to malnutrition.

Variables		Total, (n=334)	MUAC malnourished (%)	Stunting (%)	Underweight (%)	Wasting (%)
Age groups (in years)	3.01-4	161	57 (35.4)	13 (8.07)	93 (57.8)	105 (65.2)
	4.01-5	133	38 (28.6)	10 (7.52)	90 (67.7)	72 (54.1)
	5.01-6	40	10 (25.0)	2 (5.00)	27 (67.5)	14 (35.0)
Gender	Male	168	55 (32.7)	14 (8.33)	100 (59.5)	68(40.5)
	Female	166	50 (30.1)	11 (6.63)	110 (66.3)	75 (45.2)

Table 2: Breastfeeding practices of mothers of the study participants, (n=334).

Breastfeeding practices	Number of children (%)
No of children who were exclusively breastfed	301 (90.12)
No of children who were breastfed till 2 years only	39 (28.14)
No of children who were breastfed for more than 2 years	295 (71.86)

Table 3: Association of various factors with malnutrition.

Variables		Total, (n=334)	Stunting (%)		Underweight (%)		Wasting (%)	
			Yes	No	Yes	No	Yes	No
Birth order	≤2	299	19 (6.4)	280 (93.6)	190 (63.5)	109 (36.5)	134 (44.8)	165 (55.2)
	>2	35	6 (17.1)	29 (82.9)	20 (57.1)	15 (42.9)	9 (25.7)	26 (74.3)
	Chi square		5.266		0.55		4.66	
	P value		0.02 significant		0.45 not significant		0.03 significant	
Low birth weight	Present	62	9 (14.5)	53 (85.5)	50 (80.6)	112 (180.6)	32 (51.6)	30 (48.4)
	Absent	272	16 (5.9)	256 (94.1)	160 (58.8)	12 (4.4)	111 (40.8)	161 (59.2)
	Chi square		5.435		10.3		2.4	
	P value		0.0197 significant		0.00133 significant		0.12 not significant	

Continued.

Variables		Total, (n=334)	Stunting (%)		Underweight (%)		Wasting (%)	
			Yes	No	Yes	No	Yes	No
Exclusive breast-feeding	Yes	301	21 (7.0)	280 (93)	192 (63.8)	109 (36.2)	131 (43.5)	170 (56.5)
	No	33	4 (12.1)	29 (87.9)	18 (54.5)	15 (45.5)	12 (36.4)	21 (63.6)
	Chi square		1.013		1.088		0.62	
	P value		0.26 not significant		0.29 not significant		0.43 not significant	
Continued breast-feeding	<24 months	92	2 (2.2)	90 (97.8)	25 (27.2)	14 (15.2)	82 (89.1)	10 (10.9)
	≥24 months	242	23 (9.5)	219 (90.5)	185 (76.4)	110 (45.5)	61 (25.2)	181 (74.8)
	Chi square		5.172		0.02		111	
	P value		0.022 significant		0.86 not significant		<0.001 significant	

DISCUSSION

In a study conducted by Valleppalli et al in South India, prevalence of stunting was 22%, underweight 23.8%, and that of wasting was 12.4%. In present study, prevalence of stunting was 7.48%, underweight was 42.81% and wasting was 31.43%. It was also found that 68.4% of study subjects were exclusively breastfed. In our study, 90.1% were exclusively breastfed indicating good breast-feeding practices. Also, significant association between duration of breastfeeding and malnutrition was observed by them, similar to our study. Low birth weight had significant association with stunting and underweight. They also observed significant association between birth order of children and malnutrition. Similar findings were found in our study also.[7]

Rahman et al in a study conducted in Bangladesh observed that prevalence of stunting, wasting and underweight was 41%, 16% and 36% respectively. In our study the prevalence of stunting was less i.e.; 7.48%, wasting and underweight was found to be 42.81% and 31.43% respectively. Significant association between low birth weight and malnutrition was also observed by them similar to our findings in the present study.[8]

In a study done by Jana et al using NFHS data, prevalence of stunting, wasting and underweight was said to be 33% 19% and 30% respectively. In present study, the prevalence of the same conditions was 7.48%, 42.81% and 31.43% respectively. Significant association between Low birth weight and Birth order of children with malnutrition was also observed by them. Our study also had similar findings.[9]

A study conducted by Das et al in Mumbai also showed significant association between low birth weight and Malnutrition. Similar findings were found in present study also.[10]

In a study done by Veluswamy et al in south India, the percentage of children who were exclusively breastfed was 11.4%. But in our study most children, i.e., 90.1% wee exclusively breastfed.[11]

A study done by Rezwan et al in Bangladesh also shows 100% exclusive breastfeeding among study subjects. Our study also shows good percentage of children (90.1%), who were exclusively breastfed.[12]

Raval et al in a study conducted in Gujrat, found very low percentage of exclusively breastfed children (28.33%). In contrary, our study shows a better percentage of exclusive breastfeeding (90.10%).[13]

Our study has a few limitations since it was done during COVID period. The population of the area was mostly migrated from other regions. Many had returned to their villages due to the lockdown. Hence the children and mothers of such families were to be omitted from the study.

CONCLUSION

The prevalence of stunting, underweight, wasting and MUAC malnutrition were 7.48%, 62.87%, 42.81% and 31.43% respectively. The 90.12% were exclusively breastfed and breastfeeding was continued up to 2 years for 28.14% and more than 2 years for 71.86% children. The breastfeeding practices were fair among the mothers of the children. It was found that 18.56% had history of Low birth weight. It was also found that history of low birth weight of children is significantly associated with malnourishment (i.e., stunting and wasting). The total duration of breastfeeding of children till current age is also significantly associated with malnourishment. (i.e., stunting and wasting). Targeted education and awareness programs to enhance the nutrition and breastfeeding practices can improve the overall health of preschool children in the urban setting can bring about greater improvements in current situations. Improving ANC care, identifying high risk mothers can also help in reducing the rate of low-birth-weight babies which in turn will result in healthy well-nourished children.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Malnutrition. WHO-Factsheet. Available at: https://www.who.int/news-room/fact-sheets/detail/malnutrition. Accessed on 20 February, 2024.
2. Press Information Bureau. Ministry of Women and Child Development. Available at: https://www.pib.gov.in/PressReleasePage.aspx?PRID=1907187. Accessed on 20 February, 2024.
3. Low Birth Weight. World Health Organization. Available at: https://www.who.int/data/nutrition/nlis/info/low-birth-weight#:~:text=Low%20birth%20weight%20has%20been,growth%20restriction%2C%20prematurity%20or%20both. Accessed on 20 February, 2024.
4. Victoria CG, Bahl R., Barroe AJ, France GVA, Giovanny VAF, Susan H, Julia K, et al. Breastfeeding in the 21st century: epidemiology, mechanisms and lifelong effect. Lancet. 2016;389(10017):475-90.
5. Breastfeeding. World Health Organization. Available at: https://www.who.int/health-topics/breastfeeding#tab=tab_1. Accessed on 20 February, 2024.
6. Exclusive Breast feeding. World Health Organization. Available at: https://www.who.int/tools/elena/interventions/exclusive-breastfeeding. Accessed on 20 February, 2024.
7. Valleppallli C, Sumalini MM, Prathyusha TVD, Dekala RS, Nagaraj K. Impact of Low Birth Weight and Breastfeeding Practices on the nutritional Status of children aged 2 to 5 years in the slums. Eureka: Health Sci. 2023;(1);3-19.
8. Rahman MS, Howlader T, Masud MS. Rahman ML. Association of Low Birth Weight with Malnutrition in Children under five years in Bangladesh: Do Mother's Education, Socio-economic Status, and Birth Interval Matter? Plos One. 2016;11(6):1-16
9. Jana A, Dey D, Ghosh R. Contribution of low birth weight to childhood undernutrition in India: Evidence from the national Family Health Survey 2019-20. BMC Public Health. 2023;23(1336):1-14.
10. Das S, Bapat V, More NS, Alcock G. Nutritional status of young children in Mumbai slums: A follow up anthropometric study. Nutritional J. 2012,11(100):1-19.
11. Velusamy V, Premkumar PS, Kang G. Exclusive breastfeeding practices among mothers in urban slum settlements: Pooled analysis from three prospectives birth cohort studies in South India. Int. Breastfeeding J. 2017;12(35):1-7.
12. Mahmood R, Essa SM, Jahan T. Mother's Breastfeeding Practices and Nutritional Status in the Slums of Bangladesh: A study Based on Khulna city. Int J Multidisciplinary Res Hub. 2015;2(4)7-18.
13. Raval D, Jankar DV, Singh MP. A study of breastfeeding practices among infants living in slums of Bhavnagar City, Gujrat, India. Healthline J. 2011;2(2);78-83.

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