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Assessment of Undernutrition in Preschool Children of Urban and Rural Field Practice Area

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ABSTRACT

Introduction: Prevalence of child malnutrition in India has remained stubbornly high. This study was conducted to assess malnutrition in preschool children.

Methodology: Data collected from mothers of under five children of six angadwadis (total 12) each from urban and rural area in predesigned performa which included registration of child, Screening of the child for undernutrition by weight, height, mid-arm circumference measurement, sensitization of mothers regarding importance of growth chart & nutritional counselling.

Results: Out of total 252 beneficiaries (83 from urban and 169 from rural area), underweight was more in rural area (40.3%) than urban area (25.3%) with more in children of >2 years of age. Underweight was higher in male in urban area and in female in rural area. Stunted and wasted children were more in rural area. Early initiation of breast feeding detected better in rural area. In 7(46.67%) and 15(68.18%) infants been exclusively breast feed in urban and rural area respectively.

Conclusion: The prevalence of malnutrition was high among under five children of both urban & rural area. Multi pronged approach like maternal and child health care, nutrition education, growth monitoring etc. will be beneficial to combat the problem of malnutrition.

Keywords: underweight, stunting, wasting, growth chart, breast feeding

INTRODUCTION

The malnutrition is a national shame. What is surprising is that the prevalence of child malnutrition in India has remained stubbornly high even after nearly half century of respectable agricultural productivity growth and two decades of post-reform economic growth and prosperity in the country.[1] There is a wide variation in nutrition status of preschool children in urban & rural areas of Gujarat, 38.5 per cent preschool children are stunted, 21.3 per cent are wasted, & 39.3 percent are underweight in rural areas in Gujarat which is almost 10 % higher as compared to urban part.[2] The ministry of health and family welfare states that more than 55 per cent of the under-5 mortality occurs from one or more complications resulting from malnutrition.[3] So we have carried out this assessment in our field practice areas (both in urban & rural area) in preschool children to find out actual malnutrition status of under five & it's probable reasons, so that we can give necessary recommendation to higher authority.

The study was conducted to assess the malnutrition in preschool children; to assess the demographic factors affecting malnutrition; and to assess feeding practices in infants & young children.

METHODOLOGY

The study was carried out at Urban Health Training Centre (UHTC), Subhanpura, Vadodara City on 3rd September & at two Angadwadi & one subcentre of Rural Health Training Centre (RHTC) Varnama village on 5th & 6th September 2013. A total of 83 children from six Anganwadi of UHTC & 169 children from six angadwadi under RHTC participated in the study. Data collected in predesigned performa which included following matters:- Registration of child: Name, Details like Name, Age, full address, gender & Birth weight of all the children were entered into a register; Screening of the child for Malnutrition: Weight, Height & Mid-arm circumference of all the children was measured & recorded; Plotting of the weight for age of all children on Community Growth Chart (as per WHO New Growth Standard based on Z score <-2SD and <-3SD) was carried out. The mothers of all the children whose weight for age recording in Z score >2 SD (green zone on growth chart) were advised to continue to feed their children as per their current dietary practices. These mothers were also emphasised upon the significance of their regular visit to the angadwadi or primary health centre (PHC) on Mamta day for anthropometric measurement of their children. Mothers of the children with Z score <-2SD and <-3SD [Yellow & Red classification (undernourished children)] were directed to the Dietician for nutritional counselling. Similar type of study regarding status of malnutrition in under five was also carried out by other authors also.[4,5,6,7,8]

RESULTS

A total 252 participants (83 from urban and 169 from rural area) including 115 female and 137 male children were assessed for malnutrition out of which 25.3% were underweight in urban and 40.3% underweight children found in rural area. Severely underweight children also reported high in rural area (16.0%) than urban (7.2%) [Table1].

When sex-wise prevalence of underweight was observed, boys have higher prevalence than girls in urban area (24.3 against 26.03%) but in rural areas it was opposite i.e. 43.6% in girls against 37.4% in boys [Table 2].

Table 1: Age Wise Distribution of Malnutrition as per Community Growth Chart

Area & Z score	0-6 months (%)	6mo.-1 year (%)	1-2 years (%)	>2 years (%)	Total (%)
Urban (n=83)					
>+2 SD	9 (100)	16 (80)	13 (76.5)	24 (64.9)	62 (74.7)
<-2SD	0 (0)	4 (20)	0 (0)	11 (29.7)	15 (18.1)
<-3SD	0 (0)	0 (0)	4 (23.5)	2 (5.4)	6 (7.2)
Total	9 (10.5)	20 (24.1)	17 (20.2)	37 (44.5)	
Rural (n=169)					
>+2 SD	16 (80.0)	22 (78.6)	28 (73.6)	35 (42.2)	101 (59.8)
<-2SD	3 (15.0)	4 (14.3)	6 (15.8)	28 (33.7)	41(24.3)
<-3SD	1 (5.0)	2 (7.1)	4 (10.5)	20 (24.1)	27 (16.0)
Total	20 (11.9)	28 (16.6)	38 (22.5)	83 (49.1)	

Table 2 : Sex Wise Distribution of Malnutrition as per Community Growth Chart

Area & Sex	Z score >+2 SD (%)	Z score <-2SD (%)	Z score <-3SD (%)	Total (%)
Urban (n=83)				
Female	28 (45.2)	6 (40.0)	3 (50.0)	37 (44.6)
Male	34 (54.2)	9 (60.0)	3 (50.0)	46 (55.4)
Total (%)	62 (74.7)	15 (18.7)	6 (7.2)	
Rural (n=169)				
Female	44 (43.6)	23 (56.1)	11 (40.7)	78 (46.2)
Male	57 (56.4)	18 (43.9)	16 (59.3)	91 (53.8)
Total (%)	101 (59.8)	41 (24.3)	27 (16.0)	

Table 3: Sex wise Distribution of Malnutrition (Stunting & Wasting) as Per WHO Growth Standard

Sex of Children	Stunting (Z scores)(0-5 yrs)	Sex of Children	Wasting (Z scores)(0-5 yrs)
Urban			
Female (n=37)	10 (35.71)	Female (n=16)	0 (0)
Male (n=46)	18 (75.0)	Male (n=27)	5 (100.0)
Total (N=83)	28 (33.73)	Total (N=43)	5 (11.62)
Rural			
Female (n=78)	37 (56.1)	Female (n=40)	10 (47.61)
Male (n=91)	40 (43.9)	Male (n=46)	11 (52.38)
Total (N=169)	77 (45.56)	Total (N=86)	21 (24.42)

Table 4 Association of feeding practice (<1 year) & Malnutrition in urban and rural areas

Practices	Urban (N=23)	Rural (N=36)	P value
Breast Feeding Practices			
Early initiation of Breastfeeding	7 (30.4%)	19 (52.8%)	0.2234
Colostrums Given	20 (87.0%)	28 (77.78%)	0.00006
Frequency of Breastfeeding in 24 hour (> 8 times)	23 (100%)	34 (94.4%)	0.0017
Pre lacteal given	10 (43.5%)	19 (52.8%)	0.0004
Technique of Breast Feeding			
Proper attachment of Baby to breast	1 (2.30%)	6 (16.67%)	0.006
Proper Position of Baby during Breastfeeding	2 (8.70%)	3 (8.33%)	0.014
Deep Sucking with Pause	8 (34.78%)	9 (25.00%)	0.0008
Correct Method with all Sign	1 (4.35%)	3 (8.33%)	0.003

Table 5 Feeding practices assessment in children in 6 - 12 months of age

Feeding Practices	Urban (N=15)	Rural (N=22)	P value
Exclusive Breast feeding practices	7 (46.67%)	15 (68.18%)	0.0017
Frequency of Complementary feeding in a day			
3 times with breast feeding	7 (46.67%)	6 (27.27%)	0.0061
5 times without breast feeding	0 (0.00%)	0 (0.00%)	0
Type of feeding			
Liquid	1 (6.67%)	4 (18.18%)	4.03
Semisolid	10 (66.67%)	13 (59.09%)	5.83
Solid	4 (26.67%)	5 (22.73%)	0.0024
Quantity of food in each time			
Less than ¼ katori	8 (53.33%)	10 (55.56%)	1.64
¼ to ½ katori	6 (40.00%)	7 (38.89%)	3.23
½ to 1 katori	1 (6.67%)	1 (5.56%)	0.022
More than 1 katori	0 (0.00%)	0 (0.00%)	0

We found 33.75 % and 11.62% of children stunted (too short for their age) and wasted respectively in urban area, while this prevalence was more in rural area, 43.9% and 24.42% respectively [Table 3].

We assessed total 23 and 36 mothers for feeding practices in urban and rural respectively. Out of them, 52.8% and 30.4% of mother had initiated breast feeding within one hour of birth of their child in rural and urban area respectively. Only 6.78% mother's breast fed their child with correct method which was also better in rural area than that of urban area [Table 4]. Total 37 infants more than 6 months have been assessed for feeding out of which 7 (46.67%) and 15 (68.18%) infants exclusively breast fed for 6 month in urban and rural area respectively. Half of urban and one forth of rural children were received complementary feeding 3 times with breastfeeding as per Infant and Young Child Feeding Practices Guideline out of which more than half received semisolid diet & only 5% of infant ate half to one katori food in each time of feeding in a day [Table 5].

DISCUSSION

The National family Health Survey (NFHS) 3 data shows underweight 32% in urban area & 44.2% in rural area of Gujarat while NFHS 4 data shows 29.1 % in urban and 38.3% in rural areas which is also similar to our study [2,3] but it is lower as compared to study done by Panagariya et al.[9] Similar result also observed by others also.[10,11] This could be due to substandard sanitation in rural part and more working mothers at agriculture side at rural place as compared to urban place which has indirect association with malnutrition. Severely underweight children also reported high in rural area (16.0%) than urban (7.2%) while it was 16.7% as per NFHS 3[3] & 16.4% as per HUNGaMA survey [10] which is higher as compared to our study in urban & less as compared to rural area. We found higher prevalence of underweight among boys in UHTC area (26.1 against 24.3%) which is reverse in RHTC areas (43.6% in girls against 37.4% in boys) which is similar in rural area of India[3] which could be due to still prevalent gender issue and its association with malnutrition in rural part of India. Similar result also observed by Qadri et al.[12] Around 51.7% of children under age five years are stunted in Gujarat which indicates half of our state children as chronically malnourished & 18.7% children under five are wasted [acute malnutrition] which is similar to our study.[2] Results observed by HUNGaMA Survey with prevalence of stunting increases sharply from birth through the first two years of life older, reaching a maximum among children 24-35 months old (64.8%).[10] The rural India is witnessing more malnutrition among children < 5 years as higher percentage of stunted, wasted and underweight children were reported from rural areas.[2]

This could be due to discrepancy in availability of medical services and monitoring services availability between rural and urban area. We found that 52.8% and 30.4% of mother had initiated breast feeding within one hour of birth of their child in rural and urban area respectively which is much less than other study.[2,13,14] DLHS -3 shows only 40.5% children are fortunate to be breastfed within one hour of child birth.[15] This factor (early initiation of breast feeding) has considerable effect on development of malnutrition in infant which is seriously lacking in our areas. Nearly half of the infant had received pre-lacteal much more than other study[14] which has indirect relation with development of malnutrition. We found higher exclusively breast fed infants in both urban and rural area respectively which is more than NFHS 4 (54.9%) & DLHS -3 data (46.3%) while less as compared to other study (76.3%).[13,16]

CONCLUSION

We found that almost quarter of our under five children were undernourished, and the problem was even worst in rural part with almost half of girl child being affected with severe under nutrition. We also found high proportion of stunting and wasting. Even in this era still faulty feeding practices commonly observed of children's diet including late initiation of breast feeding, low exclusive breast feeding, and not following IYCF guideline.

RECOMMENDATIONS

Mothers should be advised to initiate breast feeding within one hour of delivery. Importance of exclusive breast feeding and feeding according to IYCF guideline should be explained to her.

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