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INFLUENCE OF MATERNAL FACTORS ON NUTRITIONAL STATUS OF URBAN SLUM CHILDREN

Community Medicine

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ABSTRACT

Background: Mother is considered a first teacher of children and factors related to mother greatly influence the growth and development of children. Present study has been carried out to understand the influence of maternal factors on nutritional status of children.

Methodology: During this cross sectional study, through multi stage sampling method a representative sample of 480 urban slum children were taken from urban slums of Rajkot city. Nutritional status of children were determined by WHO growth standards.

Results and Conclusion: From the sampled population, 271(56.5%) children were found underweight. Results have shown that higher proportion of female children and lower socioeconomic class children were malnourished. Maternal factors like antenatal care, literacy status of mother and birth spacing have influence on nutritional status of children whereas working status of mother has no influence on nutritional status of child. Study has found higher proportion of malnutrition among urban slum children.

KEYWORDS

Malnutrition, Maternal factors, Urban slum

Introduction:

Nutritional status of children is one of the key indicator of socioeconomic development as well as overall health status of underlying community. As developing and second most populous country, India has over 65% population below the age of 35 years and 39% population below 18 years which is considered as demographic dividend to the nation.[1] With rising trend, it is estimated that fifty percent population of India will reside in urban areas by year 2020 and from them nearly one third will be slum dwellers.[2] It is mainly because of limited availability of resources at urban areas, which are enforcing people to compromised with their residence, drinking water, drainage facility, excreta disposal which results in development and expansion of slums in city. It is bitter truth that in India more than 8 million children live in slums[3] and lack of basic amenities like safe drinking water, proper housing, drainage and excreta disposal make this population vulnerable to infections which further compromises the nutrition of those living in the slums. Various studies have shown higher prevalence of malnutrition among children residing in slums.[4-6] Malnourished child is at higher risk of mortality from respiratory infections, diarrhea, malaria, measles, and other infectious diseases. Malnutrition is not only related with morbidity and mortality, but also impair growth and development of child.[7] Studies have shown factors related to mother like age of marriage, age of conception, spacing, nutrition status, antenatal care, feeding practices, educational status and many more are having significant influence on growth and development of child.[8-10] Bonding between mother and child starts from antenatal period, thus they are recognized as single unit. Hence, present study aimed to identify epidemiological and maternal risk factors associated with malnutrition of slum children.

Methodology:

This study was carried out in Rajkot city of Gujarat. For planning purpose, city is divided into three main zones and 23 wards. There are about 84 identified slum areas in Rajkot city, which are distributed in almost all wards. Among these wards about 256 Anganwadi Centers (AWCs) are functional for serving more than 30000 under five age children of these areas.[11-13] For cross sectional study, a sample size of 480 under five age children was derived through assumption of 47% underweight[14] children among under five age group, 5% allowable error and 5% non-response rate. A multi stage sampling method was used for selecting subjects. In first phase, population proportionate sampling was done to select 10 wards from three zones of city. In second phase, 40 AWCs were randomly selected (4 AWCs from each selected ward). In third phase, 12 under five age group children were selected through systemic random sampling to complete 480 study participants. Informed verbal consent from prime care giver of child was taken. A pre tested semi structured questionnaire was administered to capture different maternal and epidemiological factors which could influence growth of a child. With the usage of pre-calibrated Salter's scale and minimal clothing, weight of the child was measured in Kg with 0.1Kg accuracy. A child whose measurement fall below 2SD as per WHO growth standard was considered as underweight. Socio-economic status was classified using Modified Prasad Classification and 194.66 value as CPI (Consumer Price Index) [15]. Epi-info software (7.1.0.6) was used for data entry and statistical calculations.

Table:1 Distribution of underweight based on various epidemiological parameters

	Total no. of children [%]	Underweight children (%)	p value ($\chi 2$ value)
Age in completed months			
<6	50 [10.4%]	27 (54.0%)	0.063 (10.48)
6-12	54 [11.3%]	36 (66.7%)	
13-24	110 [22.9%]	64 (58.2%)	
25-36	104 [21.7%]	67 (64.4%)	
37-48	82 [17.1%]	39 (47.6%)	
49-59	80 [16.7%]	38 (47.5%)	
Gender			
Male	247 [51.1%]	125 (50.6%)	0.008* (7.08)
Female	233 [48.5%]	146 (62.7%)	
Type of family			
Nuclear	204 [42.5%]	111 (54.5%)	0.46 (0.64)
Joint family	276 [57.5%]	160 (57.9%)	
Modified Prasad Socioeconomic Classification			
Class- I	0 [0.0%]	0 (0.0%)	<0.001** (35.7)
Class – II	11 [2.3%]	3 (27.3%)	
Class – III	76 [15.8%]	23 (30.3%)	
Class – IV	231 [48.1%]	133 (57.6%)	
Class -V	162 [33.8%]	112 (69.1%)	
Total	480 [100%]	271 (56.5%)	

*significant difference; ** Highly significant difference

Table:2 Distribution of underweight based on different maternal factors

	Total no. of children [%]	Underweight children (%)	p value (χ2 value)
Educational status of mother			
Illiterate	96 [20.0%]	69 (71.9%)	<0.001** (24.0)
Primary	244 [50.8%]	145 (59.4%)	
Secondary	105 [21.9%]	44 (41.9%)	
Higher secondary or more	35 [7.3%]	13 (37.1%)	
Age of mother at first conception (in complete years)			
<20 Years	149 [31.0%]	99 (66.4%)	0.0065* (10.06)
20 to 24 Years	322 [67.0%]	169 (52.5%)	
≥ 25 Years	9 [2.0%]	3 (33.3%)	
Birth spacing between two children (in months)			
<24	57 [14.3%]	35 (61.4%)	0.0013* (13.2)
24 to 35	281 [70.6%]	174 (61.9%)	
36 or more	60 [15.1%]	22 (36.7%)	
Birth order of child			
1	197 [41.0%]	91 (46.2%)	0.0004** (21.4)
2	188 [39.2%]	111 (59.0%)	
3	77 [16.0%]	53 (68.8%)	
4 or more	18 [3.8%]	16 (88.8%)	
History of miscarriage			
Present	414 [86.2%]	233 (56.3%)	0.84 (0.039)
Absent	66 [13.8%]	38 (57.6%)	
Working status of mother			
Not working	414 [86.2%]	228 (55.1%)	0.125 (2.35)
Working	66 [13.8%]	43 (65.2%)	
Antenatal care (ANC) received during pregnancy			
Full ANC	197 [41.0%]	82 (41.6%)	< 0.001** (29.9)
Partial / no any	283 [59.0%]	189 (66.8%)	
Received nutrition counselling from any health personal			
Counselled	323 [67.3%]	171 (52.9%)	0.025* (4.9)
Not counselled	157 [32.7%]	100 (63.7%)	
Total	480 [100%]	271 (56.5%)	
*significant difference; ** Highly significant difference			

Results:

As Table-1 shows, from 480 studied children, 271(56.5%) were found underweight. Highest proportion of underweight (66.7%) observed during 6-12 month age. Significant higher proportion of underweight was found among female children (62.7%) compared to male children (50.6%). Majority of children were residing in joint family (57.5%), but nutritional status of children had not shown significant difference with type of family. Majority of family were from Class-IV (48.1%) and Class-V (33.8%) as per Modified Prasad Classification. Study had found that with decline in socioeconomic class, proportion of underweight children increases which was also statistically significant.

As Table-2 shows, highest proportion of underweight was observed among illiterate mothers. An inverse relationship was found between educational status of mothers and proportion of underweight children. Nearly, 31% mother were having first conception before age of 20 years and among them highest proportion (66.4%) of underweight children noticed. About 85% mother had less than three years of birth spacing and they had 61% undernourished children. Proportion of malnourished children significantly increase with increase in birth order of child. Higher proportion of malnutrition observed among children of working mothers (65.2%). Nearly, 41% mother had received full antenatal care (ANC) and 67% mother had ever received nutrition counselling for their child. Lower proportion of malnourished children were observed among mothers who had received full ANC (41.6%) and nutrition counselling (52.9%).

Discussion:

Study had shown higher prevalence of malnutrition (56.5%) among urban slum children of Rajkot city which is higher than proportion of underweight children reported in urban area of Rajkot district (31.3% underweight as per NHFS-4)[16]. However Yadav SK et al in Belagavi (Kerala)[17] had found malnutrition 32% Higher proportion of malnourished children observed at 6-12 month age (66.7%) might be related with inappropriate initiation of complementary feeding. Gender discrimination could be a possible reason for higher proportion of malnutrition among female children (62.7%), Ndiklu et al[18] had similar findings where as Jawaregowda SK et al[19] had contradictory results. With improvement in socioeconomic status malnutrition proportion decline, study carried out by Subhada S et al[20] had found similar results. Similar to our study, S. Chakraborty et al[10] had observed role of education of mother with malnutrition. Similar to shown by Hemal C et al[8], quality of ANC care and nutrition counselling had shown possible influence with nutritional status of children. As per Mittal A et al[4] and Arshad Farooq et al[9] had shown that engagement of mother in work negatively influence nutritional status of children but we had not fund in our study. Birth spacing and birth order of child had shown significant influence on nutritional status of children, as it provide sufficient lag time to mother for attending normal physique.

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