

Impact of Socio-Economic Factors on Health Determinants of Primary School Children of Urban Vadodara



Health Care

KEYWORDS : Undernutrition; Primary School Children; Immunization; Diarrhoea; Literacy

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ABSTRACT

The study was undertaken to assess various factors associated with nutritional status and morbidity profile of under nourished primary school children of urban Vadodara. A cross-sectional study design was used to select 218 children (5-12 years) from a primary school of urban Vadodara, who were subjected to anthropometric measurements and determination of nutritional status using WHO standards of BMI for age and gender. Further, Parents of 161 children were interviewed for their socio economic status (SES); morbidity profile; immunization and past breast-feeding practices (EBP) using pre-tested semi structured questionnaire.

Results showed that 71 % of the primary school children in the study were under nourished with more boys than girls. Undernutrition and diarrhoea were significantly associated with various socio-demographic variables such as parent's literacy levels, immunization status, exclusive breast-feeding and total family income.

Hence, socio-economic factors predicted a strong positive association with the health determinants of primary school going children.

Introduction

India is a home to more than one billion people, of which 42 per cent are children. Children are considered the most important natural resource and biggest human investment for development in every community (Kaushik *et al.*; 2012). School children form 20% of total population of India which is vulnerable than rest of population for infection and malnutrition (Park, 2009). Since 1947, India has made substantial progress in human development. Still the manifestations of malnutrition are at unacceptable level (Mehrotra *et al.*; 2011). Undernutrition remains one of the primary causes of ill-health among children in developing countries like India (Nandy *et al.*; 2005). The problem of undernutrition is prevalent among children in almost all the states of our country (Som *et al.*; 2006). Children belonging to 5-12 years age group are vulnerable because of their rapid growth rate. They need more attention and care for the physical and mental development. Physical growth, development, and well-being are directly related to the nutritional status (Manna *et al.*; 2011). There is growing evidence of considerable burden of morbidity and mortality due to infectious diseases and undernutrition in school children (Das *et al.*; 2012). Although undernutrition and morbidity are said to be interlinked, they are not necessarily limited to physiological parameters and environmental factors. Socio-economical factors may also have a potential role in affecting the nutritional status of the children of our country.

In the view of limited literature on social factors as determinant of health of primary school children of urban Vadodara, the present study was undertaken in order to understand the various social linkages with the health factors.

Methodology

The present study was conducted in a semi private school located in a slum area of urban Vadodara, Gujarat using purposive sampling. All (n=218) the children studying in class I-V were selected for anthropometric assessment and their nutritional status was determined using WHO standards of BMI for age and gender (2007). On the basis of their willingness to further continue their participation in the study, parents of 161 children out of 218 were interviewed for their socio economic status (SES), morbidity profile, past breast-feeding practices (EBP) and immunization status of the children using semi-structured pre tested questionnaire.

Data was analyzed on Epi-Info Software 3.2 version. Chi square test and Odds ratio (OR) was calculated to test the significance of association amongst the various factors affecting undernutri-

tion, diarrhoea and acute respiratory infection (ARI).

Results and Discussion

Table 1 reveals that out of 218 primary school children, 99 (45.41%) were girls and 119 (54.59%) were boys. The over all gender ratio of girls to boys was observed to be 0.45:0.54 these results were contrary to an investigation conducted in urban slum of Mumbai, which reported the ratio of boys and girls as 0.74:1 (Pise *et al.*, 2012). Majority of children (70%) belonged to higher classes (class- III-V).

Undernutrition was prevalent in 71% of primary school children (Table 2), with more number of boys being under nourished (73%) than girls (69%). Most (86%) of the children belonged to undernutrition grade I and II and more boys were seen in grade III undernutrition (17.24%) compared to girls (10.29%), which in contradictory with the findings of Kaushik *et al.*, 2012.

Only 24 % of children were found to be well-nourished, with almost equal number of boys and girls. Five per cent of the total children were overweight, with higher number of girls (6%) than boys (3%).

As seen in table 3 and 4, 57% of children had exclusive breast-feed with more girls (61%) than boys (51%). Complete immunization was reported in 83% children, in terms of gender, 85% girls and 81% boys were found to be completely immunized. This data indicates that boys with lower percentage of EBP and immunization have higher risks for the development of undernutrition (OR=1.495), diarrhoea (OR=1.213) and ARI (OR=1.153) as compared to girls.

Ramachandran and Gopalan (2009) quoted in their research article that "exclusive breast feeding by mothers, protects the infant from further deterioration in nutritional status". Further analysis of overall scenario suggests that children who were partially immunized were at significantly greater risk of undernutrition (OR=1.633), diarrhoea (OR=1.860) and ARI (OR=1.662), which again backs the fact that immunization have a consequential role in over all health pattern of children.

Last 1 month medical history reported by the parents at the time of interview revealed that 32% of children were suffering from diarrhoea and 65% from ARI (table 3). Gupta *et al.* also reported similar results in the year 2012 where in, the incidence of ARI was 47.26% and diarrhoea was 30.10% in the children under five years of age.

Children belonging to joint family had higher risk of developing undernutrition (OR=1.536) and children belonging to nuclear families were at greater risk of diarrhoea (OR=1.246) which contradictory to the findings by Babar *et al* (2010).

Lower literacy level of Father significantly influenced the under-nutrition status of children, as children belonging to illiterate father had significantly greater risk of undernutrition (OR=5.305) and diarrhoea (OR= 1.319). Father is the earning member and decision maker in majority of families and therefore, his education plays an important role in ensuring child health and nutritional status (Rahman *et al*, 2009).

Children belonging to illiterate mothers had significantly higher incidence of diarrhoea (OR=3.160) and ARI (OR=1.528), which confirms that maternal education does affect the health status of child.

Total family income was found to be a significant determinant of undernutrition as, children belonging to families with total income up to `5000 per month had greater odds of undernutrition (OR=2.541), diarrhoea (OR=1.11) and ARI (OR=2.207). Research published in Pakistan in the year 2010 by Babar *et al* also adheres the same findings and quoted that "children from households with a low or very low socio economic status had 2.5 times the risk of being underweight relative to children who came from households with middle to upper socioeconomic status"

Children born out of mothers with lower parity were seen at a greater risk of developing undernutrition (OR=2.910) and diarrhoea (OR=1.913) again a contradiction of a study conducted by Sayed *et al* in 2001 on preschool children of Egypt.

Occupational status of parents were also seen to be associated with health of children as, risk of undernutrition (OR=1.557) and diarrhoea (OR=1.242) was found to be significantly higher in children belonging to father in service and business sectors than those belonging to father who were labourers. Children belonging to non-working mothers were at greater risk of undernutrition (OR=1.808).

In the present research, children born out of mother with Normal Delivery were seen to be at higher risk of undernutrition (OR=1.179) and diarrhoea (OR=1.869), reasons for such finding could not be established during the course of research.

Conclusion:

Nutritional status of primary school children is widely associated with varying factors involving parent's education, child's immunization, past breast-feeding practices family income. Therefore, the present research concludes that correctional strategies for nutritional status of children of our country should not only limit to food security or mid day meals, but consider the various socio economic factors in the order of importance such as father's literacy, immunization status of children, exclusive breast feeding practices, mother's literacy and family income.

Tables

Table 1: Class and Gender wise distribution of School Children

Categories	Boys		Girls		Total	
	No	%	No	%	No	%
Class- I	20	16.81%	12	12.12%	32	14.76%
Class- II	18	15.13%	17	17.17%	35	16.12%
Class-III	22	18.49%	24	24.24%	46	21.19%
Class-IV	33	27.73%	17	17.17%	50	23.06%
Class-V	26	21.85%	29	29.29%	55	25.33%
Total	119	54.59%	99	45.41%	218	100%

Table2- Class and Gender Wise Distribution of Undernourished Children

Categories	Boys		Girls		Total	
	No	%	No	%	No	%
TOTAL	119	54.59%	99	45.41%	218	100.00%
NORMAL	28	23.53%	25	25.25%	53	24.31%
UN	87	73.11%	68	68.69%	155	71.10%
[-1]	28	32.18%	34	50.00%	62	40%
[-2]	44	50.57%	27	39.71%	71	45.80%
[-3]	15	17.24%	7	10.29%	22	14.19%
OVERWEIGHT	4	3.36%	6	6.06%	10	4.59%

Table 3- Social and Medical History of School going Children

Categories	TOTAL		BOYS		GIRLS	
	No	%	No	%	No	%
	n=161		n=94	58%	n=67	42
Exclusive Breast Feeding Practices	92	57%	48	51%	44	61%
Immunization Profile						
Nil	2	1.24%	1	0.62%	1	0.62%
Partial	26	16.14%	17	18%	9	13.43%
Complete	133	82.60%	76	80.85%	57	85.07%
Diarrhoea	52	32.29%	32	34%	20	30%
Acute Respiratory Infection	104	64.59%	62	66%	42	63%

Table 4: Exposure/Outcome Ratios (OR) between Socio-demographic and Health variables

Variables	Undernutrition	Diarrhoea	ARI
GENDER of child			
Boys	1.495**	1.213**	1.153*
Girls	0.669	0.825	0.867
Type of family			
Nuclear	0.611	1.246**	0.972
Joint/ Extended	1.536**	0.802	1.028
Birth order			
<2	2.910**	1.913**	1.120
> 2	0.079	0.523	0.893
Exclusive breastfed			
Yes	0.668	0.349	1.017
No	1.451**	2.869**	0.984
Mother's education			
literate	0.783	0.317	0.655
illiterate	1.278**	3.160**	1.528**
Father's education			
literate	0.189	0.758	0.957

illiterate	5.305**	1.319**	1.044
Mother's occupation			
Nonworking	1.808**	1.055	1.019
Working	0.553	0.948	0.981
Father's occupation			
Service/business	1.557**	1.242**	0.771
Labourers	0.642	0.805	1.298
Type of Delivery			
Normal	1.179**	1.869**	1.274
Caesarean	0.848	0.582	0.785
Total Family Income			
up to 5000	2.541**	1.11**	2.207**
5000-10000	0.393	0.9	0.453
Immunization			
Complete	0.612	0.538	0.600
Partial/Nil	1.633**	1.860**	1.662**

**** Exposure associated with higher odds of outcome.**

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