

MALNOURISHED CHILDREN IN HUBLI-DHARWAD MUNICIPAL CORPORATION: A GEOGRAPHICAL ANALYSIS

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Abstract

Malnutrition refers to the situation where there is an unbalanced diet in which some nutrients are in excess, lacking or wrong proportion. More than one third of the world's malnourished children live in India. Among these, half of them under three are underweight and a third of wealthiest children are over-nourished. 47 percent of India's children below the age of three years are malnourished. At least half of Indian infant deaths are related to malnutrition, often associated with infectious diseases. Number of malnourished children is much more in India than the backward countries of Sub-Saharan Africa. Malnutrition is a medical condition caused by an improper or insufficient diet. However it is frequently used to mean just under nutrition from either inadequate calories or inadequate specific dietary components for whatever reason. WHO warns that malnutrition is the greatest threat to human health. Malnutrition is such menace that it not only causes the disorders but also it is result of diseases. Thus, the problem of malnutrition needs our attention to the fullest extent. Since healthy children only can grow into healthy citizens who in turn can create a healthy society in future. Hence, the present study makes an attempt to throw light on causes and effects of child malnutrition in the study area of Hubli-Dharwad Municipal Corporation of Karnataka State.

Key words: Malnutrition, Body Mass Index, Nutrients, Weight-for-height, Weight-for-age.

Introduction

Malnutrition is the condition that results from taking an unbalanced diet in which certain nutrients are lacking, in excess or in the wrong proportions. A number of different nutrition disorders may arise, depending on which nutrients are under or overabundant in the diet. In most of the world, malnutrition is present in the form of under nutrition, which is caused by a diet lacking adequate calories and protein. While malnutrition is more common in developing countries, it is also present in industrialized countries. Malnourished kids grow up with worse health and lower education achievements which lead to stunted growth and mental impairment. It increases the risk of infection and infectious diseases.

The World Bank estimates that India is ranked 2nd in the world of the number of children suffering from malnutrition, after Bangladesh (in 1998), where 47% of the children exhibit a degree of malnutrition. Prevalence of underweight children in India is among the highest in the world, and is nearly double that of Sub-Saharan Africa with dire consequences for mobility, mortality, productivity and economic growth. The UN estimates that 2.1 million Indian children die before reaching the age of five every year for every minute.

The Study Area

The present HDMC area lies between 15° 18' N to 15° 30' North latitudes and 75° East to 75° 11' East longitudes extending over an area of about 202.28 Sq. Kms. HDMC is the second largest Municipal Corporation in Karnataka State next only to Bangaluru.

Twin cities of Hubli-Dharwad has 9, 02,700 population as per 2011. Density of population is also very high i.e 4460 persons per square km. It covers an area of 202.4 Sq. Kms. HDMC

area spans over 45 villages. Hubli-Dharwad Municipal Corporation (HDMC) was constituted in the year 1962 by combining two cities separated by distance of 20 kms. This is a unique experiment in urban development history (Fig.1).

Objects of the Study

The main objectives of the present work are: To focus the problem of malnutrition and food consumption pattern of the study area. To analyse the correlation between malnutrition and Socio-economic status of the children in the study area. To calculate the BMI index for the study of malnutrition in Children of the study area. To highlight the causes and effects of malnutrition in the study area. The study mainly based on primary source of data which has been collected through the field work. The information was gathered with the help of questionnaire based interviews.

Work based on primary data in which 108 families which were having malnourished children were surveyed. Questionnaire was prepared for studying quality of life of 108 families in different zones of HDMC. Based on the height and weight of malnourished children BMI was calculated. Degree of malnutrition was calculated. Gradation was done to analyse the status of malnutrition in the study area.

Malnourished Children in Hubli-Dharwad Municipal Corporation

Women and Child Welfare Department of HDMC has surveyed and prepared a list of malnourished children in the area in the year 2012 by dividing the area into 15 zones. According to it there are totally 26.73% malnourished children of below five years age in Hubli-Dharwad Municipal Corporation.

HDMC ranks first in the district with highest number of malnourished children. Dharwad Rural is in the second position with 23.86% malnourished children and followed by Kalaghatgi with 13.96% children. Number of such children is very less in Hubli Rural where it is 9.70% of the total. With rapid urbanization the problem of poverty and spread of slums is enhancing. These are leading to malnutrition of the people in general and children in particular. According to National Family Survey of Health (NFSH) 2011 mortality due to malnutrition in our country is 45 per 1000 death while in Dharwad it is 69 per 1000. Even backward districts like Gulbarga and Koppal have recorded lower deaths than Dharwad with 67 and 65 deaths per 1000 respectively.

When we observe zonal distribution of underweight kids in HDMC, Sadarsofa and Heggeri zones are having maximum number of malnourished children with 10.34% of total children each. Both are in Hubli city. While IRSC zone which is in Dharwad ranks second with 9.39% of malnourished children. This is followed by Ganeshpeth zone and Hale Hubli Zone with 7.25% and 7.13% respectively. Police Head Quarter zone accounts for minimum number of malnourished children in the Corporation area.

In almost all zones, female children outnumber their male counterparts. 60.04% of the undernourished children are females remaining 39.95 % are male children. The highest number of female children is in Ganeshpet zone and is followed by Purohit nagar where the percentage of malnourished females is 65.85. None of the zones have less than 50% of female children who are undernourished.

Age and caste of the malnourished children

As far as caste of the male children is concerned 17.70 % of the children are belonging to SC/ST. Muslim children constitute 42.95% of total malnourished children. There is no such difference between Muslims and other caste people as their percentage is 42.90. Therefore,

we can understand that caste has no influence on the problem of malnourishment in HDMC area. It is interesting to know that number of undernourished kids is more in the age group of one to two years. It is 28.85% and it is followed by two to three years group with 27.54%. Number of malnourished children is very low in the age group of less than one year. Thus, we can assume that the children of one to two year age are more prone to malnourishment in the study area (Table 1).

As far as female malnourished children are concerned their average weight is 7.29 Kg. SC/St children account for about 17.12% of the total. Muslim children constitute 38.47% of the whole. While, 44.39% i.e maximum number of females of underweight belongs to other castes. When we observe caste groups of all malnourished children of HDMC, the number of SC/ST children is very low compared to other castes groups which consist of 43.83% of underweight children. Proportion of Muslim children is also high with 38.81% of the total.

Socio-Economic Status of malnourished Kids

The Nutritional status of the people is indirectly related to their socio-economic condition of the people (Dadhadekar and Kalia, 2012). In the study area, it is found that majority of heads of the family are illiterate and their income is too less to maintain their even minimum standard of living. It is meagre family income that determines the lower level of nutrition status in the region. Poor level of education and mostly illiteracy among women keep them ignorant about the nutrition value of diet, proper eating habits and the overall hygienic perspective of proper food intake.

Level of Education of the Parents

Education of the parents has direct relation with malnourishment of the children because 84.62 % of the parents of such children have not completed S.S.L.C. While only 5.76% of the parents have studied up to P.U.C. and only 5.76% of the parents have degrees (Table 1).

Caste groups of the Parents

In case of caste 23.07% of the children are belonging to SC/ST, 34.61% are belonging to Muslim Remaining 42.30% are from other castes. This makes it clear that highest number of children is found in other castes only compared to Muslims and SC/STs. So we can conclude that caste makes no difference in malnutrition (Table 1). There is no remarkable association between castes and degree of nutrition status.

Monthly Income of the Parents

Income of the household basically affects their nutritional status. It is common that low income group suffers from malnourishment in comparison to high and middle income groups.

In general, those who are poor are at risk of under-nutrition, while those who have high socio-economic status are relatively more likely to be over-nourished. Anemia is negatively correlated with wealth. Thus, it is common knowledge that poor people cannot provide all nutrients to their children. Our study also substantiates the same as 37.50 % of the parents are earning more than Rs. 9000/- per month. Remaining 62.50 % of the parents are earning very less i.e less than Rs.9000/- They are not able to provide protein and vitamin rich food to their children as they spend most of their income on basic food items like rice and jowar (Table 1).

Type of the family

Type of the family also influences the care of the malnourished children. 54.80% of the children are from joint families and 45.19% are living in nuclear families. Although, there are more members to take care of children in joint families, they neglected here only. It is mainly

due poverty most of the family members go out for earning from some petty jobs. They leave children with their elder sisters. Girls cannot feed the children properly (Table 1). Thus, joint family has not become an advantage in the study area.

Table 1. HDMC:Socio-Economic Status of Respondents

	Education			Caste			Monthly Income				Type of Family	
	Below SSLC	SSLC -PUC	Degree	SC/ST	Muslims	Others	<3000	3000 - 6000	6000 - 9000	>9000	Joint	Nuclear
No. Of Respondents	88	10	06	24	36	44	29	28	08	39	57	47
Percentage	84.61	9.61	5.76	23.07	34.61	42.30	27.88	26.92	7.69	37.50	54.80	45.19

Nutritional Status of Malnourished Children in HDMC

The phenomena of malnutrition require closer scrutiny. The three indicators of undernourishment provide somewhat different information about the nutritional status of children. These indicators are briefly described here. *Height-for-age* (stunting) is a measure of linear growth retardation. Stunted or short children are deviations population in terms of height-for-age. Stunting is a cumulative indicator of nutritional deprivation from birth (or rather conception) onwards.

It is relatively independent of immediate circumstances since height does not change in short term. The second indicator, *weight-for-height* (or wasting) captures the thinness of children and indicates the prevalence of acute malnutrition. Wasting is an indicator of short term nutritional status. The third indicator, *weight-for-age* (underweight) captures elements of both stunting and wasting, that is chronic as well as acute under nutrition (Deaton and Dreze, 2008). WHO also suggest the parameter to measure nutritional status by calculating weight for age.

Body Mass Index

Body mass index is defined as the individual's body mass divided by the square of his or her height. Body Mass Index was devised between 1830 and 1850 by the Belgian polymath Adolphe Quetelet during the course of developing "social physics". BMI is considered as the best proxy for body fat percentage among ratios of weight and height. Thus, Body Mass Index (BMI) is good method to judge the nutrition status and health of human beings. This is also called Quetelet Index. This index does not require any standard tables. This index is calculated in the following way:

$$\text{BMI} = \frac{\text{Weight (Kg.)}}{\text{Height}^2(\text{m})}$$

A keen observation of BMI values of the study indicates that more than 60 percent of the children are severely malnourished. There are hardly 10 percent girls and 6% boys who are moderately under nourished. Among the boys 74.46% are severely malnourished whose BMI is less than 20. While 19.14 percent of the children are moderately under nourished.

Proportion of severely malnourished females is lower i.e 60.65% compared to male children. 29.50% of the female children are moderately malnourished. Apart from these, there are four children who are very severely malnourished. Whose BMI is less than 10. They are at high risk of malnutrition and suffering from nutrition deficiency disorders (Table 2).

We can have a better picture of malnourished children in the study area by calculating the degree of malnutrition. Here, we can compare actual weight of a child with that of normal weight child.

Degree of Malnutrition

The degree of the malnutrition of the surveyed children of the study region is based on Gomez classification (Park,1997). The rate of malnutrition can be calculated by following formula:

$$\text{Weight for age} = \frac{\text{Weight of the person}}{\text{Weight of a normal person of same age}} \times 100$$

After calculating degree of malnutrition by applying the above mentioned formula, we can divide the data into four grades such as Mild malnutrition, severe malnutrition, and very severe malnutrition and at high risk of malnutrition. Only 11.11% of the children of the study area are malnourished mildly. Their proportion is higher in females (11.47%) compared to their male counterparts (10.63%) 37.03% of the kids are severely malnourished. If proper care has not been taken about these children their condition may worsen further which result into irreversible damage to the health of the children.

Percentage of very severely malnourished children is 33.30 which indicate that one third of the total population is in urgent need of medical treatment. Most of the children are taken to the health centres regularly and additional nutrients are supplied to these kids. Condition of 18.51% of the malnourished children is serious. They are at high risk of deficiency diseases such as Marasmus and Kwashiorkor (Table 4 and Fig.2).

At all grades, females out number males. Thus, the present study proves that girls are malnourished to greater extent due to gender disparity, extreme low status of women and negligence of the parents.

Table 4. Grade of Malnourished Children in HDMC

Sl.No	Degree of Malnutrition	No. of Female Children	%	No. of Male Children	%	Total	%	Grade
1	Above 75	07	11.47	05	10.63	12	11.11	Malnourished
2	Between 65-75	24	39.34	16	34.04	40	37.03	Severely Malnourished
3	Between 55-65	19	31.14	17	36.17	36	33.33	Very Severely Malnourished
4	Below 55	11	18.03	09	19.14	20	18.51	At High Risk of Malnutrition
Total		61	100	47	100	108	100	

Source: Personal Computation and Field Survey

WHO's growth Charts

WHO has recently provided growth chart for both girls and boys below five years of age with certain parameters to plot weight of the children for age. In this chart green band shows status of normal weight children. When we plotted data of our study region, hardly one or two children fell in this band. The second band which indicates mild malnutrition. Number of children who fall in this band is also high. But most of boys and girls are in band of severe malnutrition (Fig.3 and 4).

Uphill Task of Anganawadis

There are totally 809 anganawadis in the district but 493 out of them are not having their own building and they are being run in either school or temple premises. These anganawadis had been set up with high aim of providing health care to carrying women and children below six years age. Even after decades of their establishment, anganawadis could not improve the health of both as they are lacking basic infrastructure. Government is not releasing salary to the workers properly. Although, it is providing 750/- rupees per month for each malnourished child in HDMC for nutritious food, anganawadis are striving hard to get that money or food regularly. Many a times it does not supply food also. Working hours of anganawadis are recently increased up to 4 pm. in the evening. but there are no facilities for the children to sleep. They have to sleep on gunny bags. Thus, Government has failed to fulfill its own aims and objectives of assuring good food and health to the children. All these lacunas are hampering any improvement in the situation

Conclusion and Suggestions

The study has presented an in depth analysis of the severity of the malnutrition in Hubli-Dharwad Municipal Corporation area. Here is an attempt to present all the significant and relevant results of the work in brief

Majority of children are under weight and are affected by malnutrition. Caste has no influence on malnutrition. Poverty and low level of education are the main causes of low nutritional status of the children. Extreme low status of women is leading malnutrition of the children and it another reason for malnutrition. More than 60% of the underweight children are severely malnourished. In the study region nutrient intake is closely related to income. In high and medium income groups, the intake of nutrients is recorded higher while in low income group, the value is the lowest. Anganwadis which were established to provide nutritious food and health care for both pregnant women and children below 5 years age could not achieve the goal as there are many lacunae.

With a view to improve the overall nutritional status of rural population in the region following suggestions are made: Instead of considering anganwadis as the only medium through which malnutrition can be eradicated, government should make use of all other possible channels to achieve the goal. Along with it anganwadis must be strengthened by regular release of aid for infrastructure, food and health care. Although, the state government is providing the midday meal to school children, there is need to support it with proper nutritious food. Most essential nutrients can be provided in the form of tablets. Government or NGOs should create awareness among mothers how to add supplementary foods available at home such as rice/chapati and dal with mashed, locally-grown green leafy vegetables to a child's diet from six months onwards, along with breastfeeding. There is practice of breastfeeding until about two years and do not add semi solid supplementary foods to children's diet, which leads to deficiency of nutrients. Thus, there is a need to train and motivate mothers to add semi solid food to children's diet to provide all nutrients. Jowar and paddy are the main foods of the area. Most of the people do not add other items i.e. vegetable, dal, milk, fish etc. which is resulting into insufficiency of nutrients. Malnutrition is directly affected by the income, occupation literacy, social status and size of the family. In order to improve the nutritional status of rural people, it is imperative to improve the socio-economic conditions through suitable development schemes. Action should also be taken to reduce malnutrition through nutrition counseling and networking with the local participation of people. Deshpande Foundation is doing a good job in Dharwad city by adopting more than 40 malnourished children it is providing all necessary nutrients and health care to those

children. Such organizations are to be identified and encouraged to fight against the malnutrition. The status of women is readily linked to child nutrition. A malnourished mother will give birth to a baby of low birth weight – the single most important predictor of child survival. So again, any sustained effort at reducing child malnutrition must begin with a reduction in women's malnutrition and improvement in women's health generally. Training programmes regards preparation of food items, knowledge of nutrients, community education and awareness programme especially for women should be organized by nutrition expert in all slums. Healthy children only can grow as healthy citizen who in turn can create a healthy society. Therefore, awareness must be created not only among poor people but also the rich people. They must be encouraged in such way that instead of wasting food they can donate it to needy people.

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