Nutritional Status of Children in Slums

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Abstract

A Survey, based on anthropometric indicators, of children aged five and below revealed high occurrence of under nutrition especially among males and females underlining lack of essential civic amenities like maintenance of proper sanitation, hygiene, toilet facilities, clean drinking water in slum communities of Delhi.

Introduction

Malnutrition is one of the major problems significantly affecting almost all continent especially the developing ones within which Asia and Africa are the ones which are worst hit. This paper aims to seek the nutritional status of children in Non-Notified slums of Delhi. Non Notified slums are the slums which are not recognized by their respective Municipalities and are still struggling for asserting their existence. The effects of malnutrition on human health and survival have been the subject of extensive research for several decades. Although many questions remain concerning the precise mechanism and magnitude of effect, there has now been considerable evidence there has been now considerable evidence to suggest that malnutrition has effects on physical growth, chronic development, reproduction, physical work capacity, and cognitive impairments in children if they do not receive ample nutrition during the first few years of their life (Save the children, 2012; Pelletier and Frongillo, 2003; Casapia, 2007). Nutritional status of children is an integral component of the overall health of the individual. In the case of children, nutritional status can affect growth, development and immunity to disease. UNICEF reported that 55% of deaths of children below 5 years of age are due to malnutrition. Dreze and Sen(1989) stated that child malnutrition and infant mortality kill people slowly in long run than famine.

Measurement of under nutrition

There are commonly two approaches to assess the nutritional status of children one which is based on dietary intake of food and the other approach is based on the anthropometric assessment of children.

In both the approaches much debated issue or concern is the reference standard of the Nutritional status of children. This paper is an outcome of pre-field analysis where in the schedule was tested on 75 women who answered questions on the behalf on their kids and their physical measurement were taken through weighing machine and measuring tape(Number of children were 80 out of which 36 are male and 44 are female). The subjects were having minimum clothing and were asked to stand on the platform of the scale without touching anything and looking straight ahead. Height was measured using a measuring tape fixed vertically on a smooth wall perpendicular to the ground, taking care to see that the floor area is even and not rough. Each subject was asked to remove the shoes, stand with the centre of his back touching the scale, with his feet parallel, heels, buttocks, shoulder and back of the head touching the wall. The head was held comfortably erect and then measurement was taken which was compared with ICMR standard for growth under 5 age group. For children below two years of age the measurement was taken in Supine Position and for above two years in standing position.

The three reference standard used in paper is as follows

- **Weight-for-age**: A child of a given age (in months) and sex is said to be moderately under nourished when his/her weight in kgs falls below two standard deviation of the median in the reference population , and severely under nourished when his/her weight falls below three standard deviation of the median.
- **Height-for-age:** Similarly, moderate and severe under nutrition can be ascertained for a child of given age and sex by comparing the recorded observation for height in cms with that of the median for the reference population
- **Weight-for-height:** If the recorded weight for a given height is less than two standard deviation of the median weight value of the reference population , the child is identified as moderately undernourished . The three indices defined above capture different aspects of under nutrition.

Apart from the above said three measures in order to see the nutritional status of the slum children. This paper uses two classification that is Gomez and waterloo classification in order to see different grades of malnutrition among children. Gomez classification gives classification of underweight and waterloo gives classification of both stunted and wasted through following formula **Gomez under weight**=percent of reference weight for age = ((patient weight) / (weight of normal child of same age)) * 100. **Waterloo Classification:** Chronic malnutrition results in stunting. Malnutrition also affects the child's body proportions eventually resulting in body wastage percent weight for height = ((weight of patient) / (weight of a normal child of the same height)) * 100percent height for age = ((height of patient) / (height of a normal child of the same age)) * 100

Theoretical Background

Good nutrition during the 1,000-day period between the start of a woman's pregnancy and her child's second birthday is critical to the future health, wellbeing and success of her child. The right nutrition during this window can have a profound impact on a child's ability to grow, learn and rise out of poverty. It also benefits society, by boosting productivity and improving economic prospects for families and communities. Malnutrition is an underlying cause of 2.6 million child deaths each year[1] Millions more children survive, but suffer lifelong physical and cognitive impairments because they did not get the nutrients they needed early in their

lives when their growing bodies and minds were most vulnerable. When children start their lives malnourished, the negative effects are largely irreversible. Pregnancy and infancy are the most important periods for brain development. Mothers and babies need good nutrition to lay the foundation for the child's future cognitive, motor and social skills, school success and productivity. Children with restricted brain development in early life are at risk for later neurological problems, poor school achievement, early school dropout, low skilled employment and poor care of their own children, thus contributing to the intergenerational transmission of poverty. Prevalence of stunting was more in boys (41.47%) as compared to girls (38.81%) in Karnataka (Izharul Hasan *et al*, 2011).Though there is meagre divergence of 3 to 4 percent but prevalence of stunting is more in boys than girls. Another paper highlights during first three months after birth, there was no increase in underweight and stunting rates, while progressive increase in underweight and stunting rates between 3-23 months of age and low BMI for age and wasting rates were highest at birth were reported (Ramachandran and Gopalan,2011). [1] See the lancet Vol 371

According to National Family Health Survey report on Nutritional status of children highlights 46 percent of the children under 5 years of age are moderately to severely underweight (thin for age), 38 percent are moderately to severely stunted (short for age), and approximately 19 percent are moderately to severely wasted (thin for height). Another study on Nutritional status of children in informal settlement in Nairobi, Kenya highlights incidence of stunting was found in 47.0% of the children; 11.8% were underweight, and 2.6% were wasted. Severe stunting was found in 23.4% of the children; severe underweight in 3.1%, and severe wasting in 0.6%. Children aged 36-47 months had the highest prevalence (58.0%) of stunting while the highest prevalence (4.1%) of wasting was in children aged 6-11 months. Boys were more stunted than girls ($p<0.01$), and older children were significantly ($p<0.0001$) stunted compared to younger children. In the third year of life, girls were more likely than boys to be wasted ($p<0.01$) (Olack, 2011)

Another paper shows the comparison of the relative risk for infections in undernourished children showed that the relative risk morbidity due to infections was higher and more consistently seen in children with low BMI (Body Mass Index) and wasting as compared to stunting or underweight. The small group of children who had stunting with wasting had the highest relative risk of morbidity due to infection (Ramachandran and Gopalan, 2011). Rajaram *et al.* (2003) assessed the nutritional status of children below ûve years using the three anthropometric measures weight-for-age, height-forage and weight-for-height in two states of India – Kerala and

Goa. They found prevalence of underweight, wasting and stunting among children was very high in the two states and the socioeconomic and family planning variables had signiûcant inûuence on the degree of malnutrition

Result and Discussion

Underweight means that child's weight is too low for their age. A child can be underweight 'because she/he is stunted, wasted or both. Weight is a sensitive indicator of short-term (i.e., acute) under nutrition. Whereas deficit in height (stunting) is difficult to correct, a deficit in weight (underweight) can be recouped if nutrition and health improve later in childhood. Worldwide, more than 100 million children are underweight being underweight is associated with 19 percent of child deaths. Thus, results from analysis of 80 children (36 males and 44 female) shows more male children are underweight than their female counterpart (94.4% and 86.4%) respectively while 11.3% of female are obese than male 5.6% as shown in table 1. Similarly, table 2 shows that 29.5% 31.8 % 25% and13.6% are normal, mild, moderate and severe underweight female. Among males 5.6% 47.2% 19.4% and 27.8% are normal, mild, moderate and severe underweight respectively.

TABLE 1 : No. of Children Underweight

SEX	WEIGHT			
	UNDERWEIGHT	NORMAL	OBESE	TOTAL
MALE	34(94.4)*	0	2(5.6)*	36
FEMALE	38(86.4)*	1(2.2)*	5(11.3)*	44
TOTAL	72	1	7	80

Source: Field Survey

Note: Figure in the brackets are percentage from the respective total no. of male and female children.

Table 2: No of Male and Female underweight using Gomez classification

Gomez classification of under weight	Female(n=44)	Male(n=36)
90-110(normal)	13(29.5)	2(5.6)
75-89(mild)	14(31.8)	17(47.2)
60-74(moderate)	11(25)	79(19.4)
>60 severe	6(13.6)	10(27.8)
Total	44	36

Source: Field Survey

Note: Figure in the brackets are percentage from the respective total no. of male and female children.

Stunting means that child is too short for their age. This is caused by poor diet and frequent infections. Stunting generally occurs before age 2, and the effects are largely irreversible. These include delayed motor development, impaired cognitive function and poor schoolperformance. In total, 171 million children which constitute 27 percent of all children globally are stunted[2].[2] See save the Children (2012)

The results from analysis from 80 children which comprises of 936 males and 44 females) shows that all male children in the sample are stunted than female (100% and 88.6% respectively) which is evident in table 3. The waterloo classification shows that 31.8%, 20.5 %, 31.8% and 15.9% are as normal, mild, moderate and severe stunted females. Among males 25%, 25%, 27.8 and 22.2 are normal, mild, moderate and severe stunted.

Table 3 No. of children stunted

Sex	**Height**		**Total**
	Stunted	**Non-stunted**	
MALE	36(100)	0	36
FEMALE	39(88.6)	5(11.4)	44

Source: Field Survey

Note: Figure in the brackets are percentage from the respective total no. of male and female children

Table 4: No of Male and Female underweight using waterloo classification

Waterloo classification of stunted	**Female(n=44)**	**Male(n=36)**
>95 (normal)	14(31.8)	9(25)
90-95(mild)	9(20.5)	9(25)
85-90(moderate)	14(31.8)	10(27.8)
<85 severe	7(15.9)	8(22.2)
Total	44	36

Source: Field Survey

Note: Figure in the brackets are percentage from the respective total no. of male and female children

Wasting – A child's weight is too low for their height. This is caused by acute malnutrition. Wasting is a strong predictor of mortality among children under 5.It is usually caused by severe food shortage or disease. In total, over 60 million

children – 10 percent of all children globally. The result from the analysis shows that 100% of male and female children are wasted as evident from table 5. The waterloo classification shows 52.3% 22.7% 11.4% and 13.6% as normal, mild, moderate and severe wasted females. Among males 33.3% 22.2% 22.2% and 22.2% are normal, mild, moderate and severe stunted respectively.

Table 5 No. of children wasted

SEX	WASTED	NONWASTED	TOTAL
MALE	36(100)*	0	36
FEMALE	44(100)*	0	44
TOTAL	80	0	80

Source: Field Survey

Note: Figure in the brackets are percentage from the respective total no. of male and female children

Table 6: No of Male and Female wasted using waterloo classification

Waterloo classification of wasted	Female(n=44)	Male(n=36)
>90(normal)	23(52.3)	12(33.3)
80-90(mild)	10(22.7)	8(22.2)
70-80(moderate)	5(11.4)	8(22.2)
>70 severe	6(13.6)	8(22.2)
Total	44	36

Source: Field Survey

Note: Figure in the brackets are percentage from the respective total no. of male and female children

Discussion

This study highlights the nutritional status of children in Non-Notified slums of Delhi and also brings out in a certain way the maternal health status of women as the two are correlated. Marriage and early pregnancy in teenage women leads to low weight baby which further leads to child growth failure which in turn can result into underweight, stunted and wasted children in majority of cases. Secondly, in spite of the national intervention in terms of National Rural Health Mission which is now universally applicable but many more serious intervention is needed on the part of the government and Non-government organization which can bring significant changes among women who should be the major target group in terms of nutrition policies, work participation which can make them self sufficient and independent. Thirdly,

the government should spread awareness among adolescence youth especially young ones so that the change can be initiated. It is through awareness that various myths can be broken and healthy lifestyle can be adopted. Fourthly, along with the formal schooling education on various issues maintenance of Sanitation and hygiene, recognition of various ailments so that quick medical access can be given to the concerned child/children which could trim down the morbidity pattern in these communities. Fifthly, Maternal health, education and nutrition of women should be significantly focussed in educational curriculum so that women could combat every form malnutrition. Sixthly, emphasise empowering of women, collectivisation and access to resources, address the socio-cultural patriarchal issues that affect women. Seventhly, expanding the focus on girls and women's nutrition within the existing national programme. Finally, promote awareness and build capacity of Accredited Social Health Activist within the community.

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