Original Article

International Journal of Food, Nutrition and Dietetics

Volume 1 Number 1, Janaury - April 2013

Impact of Socio-Economic Factors on Underweight of the Pre-Schoolers

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Abstract

India is one of the fastest growing countries in terms of population and economics, sitting at a population of 1,139.96 million (2009)[1] and growing at 10-14% annually (from 2001-2007). [1]India's Gross Domestic Product growth was 9.0% from 2007 to 2008; [1]since Independence in 1947, its economic status has been classified as a low-income country with majority of the population at or below the poverty line. Though most of the population is still living below the National Poverty Line, its economic growth indicates new opportunities and a movement towards increase in the prevalence of chronic diseases which is observed in at high rates in developed countries such as United States, Canada and Australia. The combination of living in poverty and the recent economic growth of India have led to the co-emergence of two types of malnutrition: under nutrition and over nutrition.

Key Words: Over Nutrition: refers to an excessive intake of one or more nutrients, which creates a stress in the bodily functions. **Pre-term:** Babies born before the end of 37 weeks gestation (less than 259 days). **Post-term:** Babies born at 42 completed weeks or any time there after (294 days and over) of gestation. **Term:** Babies born from 37 completed weeks to less than 42 completed weeks (259-293 days) of gestation. **Under Nutrition:** (also known as Protein-Calorie malnutrition or energy-deficiency) is associated with exacerbation of health conditions, increased frailty, and decline in physical, cognitive, and affective function.

Introduction

Children are nature's gift and the fountain of life. They are our future and are a supremely important asset of life. Their nature is solicitude and it is our responsibility. The strength of nation lies in the health of citizens. Children are future citizens and their health is nation's wealth. There is a meaningful truth in saying that "Nation marches on the tiny feet of young children and no nation can flourish without due love and attention paid to its children". By promoting their health we will be strengthening the development of the family, nation and the world.

A good nutrition is essential for the growth of the children. Nutrient requirements are recommended dietary intakes by national and international experts are primarily need for healthy normal growth and development. According to United Nations declaration "the child shall enjoy the special protection and shall be given opportunities and facilities by law and order and by means to enable him to develop physically and mentally in a healthy and normal manner and in a condition of freedom of dignity". The child has all the right to enjoy the benefits of social security, housing, nutrition and medical care.

Realizing the importance of children, World Health Organization (WHO)[2] has declared the themes relating to children in the following years,

1951 – Health for your child and world's children.

1979 – A healthy child a sure future.

1984 – Children's health tomorrow's wealth.

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(Received on 20.12.2012; Accepted on 18.04.2013)

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2005 – Make every mother and *child* count.

In the millennium declaration of September 2000,[3] member states of United Nations made a most passionate commitment to address the crippling and multiplying misery that grip many areas of the world. Governments set a date of 2015 by which they would meet the Millennium development goals. Among these, the first goal is to eradicate extreme poverty and hunger, which is measured by the prevalence of underweight children. The target is to halve the burden of under nutrition. The next important goal with regards to children is to achieve two third reductions in mortality and infant mortality by 2015.

Three quarter of children who die world wide of causes related to malnutrition are described by nutritionists as mildly to moderately malnourished and thus betray outward signs of problem to a casual observer.

In India, majority of people live in rural areas. The health status and health problems vary in rural children because of low standard of living, poor hygiene and inadequate sanitation. Several studies have been conducted throughout the country on various aspects like growth pattern, feeding practices, morbidities and nutritional deficiencies among pre-school children. But very less information is available regarding the nutritional status, in this part of nation and in our field practice area. The World Bank estimates that India is ranked 2nd in the world of number of children suffering from malnutrition, after Bangladesh (in1998),[4] where 47% of the children exhibit a degree of malnutrition. The prevalence of underweight children in India is among the highest in the world, and is merely double that of Sub-Saharan Africa with a dire consequences for morbidity, mortality, productivity and economic growth. The UN estimate that 2.1 million of Indian children die before reaching the age of 5 years. Every day, 1000 Indian children die because of diarrhea alone. According to the 1991 census of India it has around 150 million children, constituting 17.5% of India's population, who are below the age of 6 years. Child under nutrition measured as a poor anthropometric status – is internationally recognized as an important public health indicator for monitoring nutritional status and health in population. Young children are most vulnerable to under nutrition and face the greatest risk of its adverse consequences. In addition, growth retardation in early childhood is associated with significant functional impairment in adult life [5] and reduces the work capacity [6] which in turn has an impact on economic productivity.

Determinants of childhood undernutrition

Under nutrition have several levels of determinants. Poverty is a strong underlying determinant that leads to household food insecurity, poor childcare, maternal under nutrition, unhealthy environments and poor health care. These factors then lead to the immediate determinants of childhood under nutrition, that is, low birth weight, inadequate dietary intake of nutrients and frequent infectious diseases. Low birth weight, primarily due to Intra Uterine Growth Retardation (IUGR) in developing countries, is a consequence of maternal under nutrition prior to and during pregnancy and subsequently contributes to under nutrition in infancy and childhood .[7] This is especially important in areas such as South Asia, where there is a very high prevalence of low birth weight. The diets of many children in developing countries are inadequate, and children in first two years of life are at risk.

In order to tackle the problem of under nutrition, the Government of India has taken up several initiatives and ICDS is one of them. Integrated Child Development Services (ICDS) scheme was launched in 1975 with the objectives of improving the nutritional health status of children in the age group of 0-6 years in addition to services to the mother. In Karnataka, there have been very few studies and no district level data bases are available on nutritional parameters. The Department of Women and Child Development, Government of Karnataka which is the nodal department viewed the need for taking a stack of the

situation in the state using new "WHO Growth Standards". The new "WHO Growth Standards" sets the benchmark for growth and development of all children from birth to the age of five, which is age and gender specific. The significance of these standards is also to provide a unique link between physical growth, motor development and a strong evidence for the protection, promotion and support of the right of every child to develop his/her full potentials.

Child health problems

The problems facing the health worker in the developing world are vast and are nowhere more evident than in the field of child care. The main health problem encountered in the child population comprises the following:

1. Low birth weight
2. Malnutrition
3. Infection and parasitoses
4. Accident and poisoning
5. Behavioral problems.

The birth weight of an infant is the single most important determinant of its chances of survival, healthy growth and development. There are two main group of low birth weight babies 1) those are prematurely (short gestation) and 2)those with foetal growth retardation. By international agreement low birth weight has been lined as a birth weight of less than 2.5 kg (up to & including 499 gms), the measurement being taken preferably with the first year of life. Apart from birth weight, babies can also be classified into three steps according to gestational age using word "pre-term", "term", and "post-term".

The prevalence and distribution of malnutrition in a society have implications for public health outcomes and policy formulation. Body Mass Index (BMI), calculated as weight (kg)/height^2 (m), provides an indicator of nutritional status. Global Acute Malnutrition (GAM), or "Wasting", is defined as low weight for height, or the presence of edema. It can be moderate (MAM) or severe (SAM). Severe Acute Malnutrition characterizes children with a very low weight for height, by visible severe wasting, or by the presence of edema.

Protein-Energy Malnutrition (PEM) has been identified as a major health and nutrition problem in India. It occurs particularly in children in the first five years of life. It is characterizes by low birth weight if the mother is malnourished, poor growth in children and high level of mortality in children between 12-24 months, and is estimated to be an underlying cause in 30% of death among children under age 5 years.

Statement of problem

"A study on impact of socio-economic factors on underweight of the pre-schoolers in Tumkur".

Objectives

1. To review the levels of under nutrition in the community based on ICMR standards using anthropometric data in Tumkur.
2. To find out the different socio-economic factors affecting nutritional status of the pre-schoolers and to identify the problems of working and non-working mothers in feeding their children.

Hypothesis

H1- Socio-economic factors directly influence the nutritional status of the pre-schoolers.

H2-Work schedule of the mother affects the nutritional status of the child.

Research methodology

For accomplishing the objectives of the study, a house hold survey work was adopted. The study was conducted in Tumkur city. With a purposive sampling method, Sixty three children were selected (divided into children of working and non-working mothers). Self

Table1: Socio-Economic status of both Working and Non-Working Women

		Working Women		Non-Working Women	
		No.	%	No.	%
Type of house	Pucca	10	25.64	8	33.33
	Semi-pucca	20	51.28	14	58.33
	Kutcha	9	23.07	2	8.33
Type of family	Nuclear	24	61.53	13	54.16
	Joint	8	20.51	6	25
	Extended	7	17.94	5	20.83
Source of drinking water	Tap	24	61.53	13	54.16
	Tube well	12	30.76	6	25
	Open well	3	7.69	5	20.83
Toilet facility	Open Space	20	51.28	16	66.66
	Toilet room	19	48.71	8	33.33
Economic status	APL	14	35.89	3	12.5
	BPL	25	64.10	21	87.5
Education level	Illiterate	18	46.15	5	20.83
	Read & Write	10	25.64	14	58.33
	Educated	11	28.20	5	20.83

Table 2: Prevalence of underweight of the children according to BMI

Sex	Working Women		Non-Working	
	Count	Standard Deviation	Count	Standard Deviation
Boys	12	2.44	10	2.27
Girls	27	1.92	14	3.32
Pooled	39	2.18	24	2.795

administered knowledge questionnaire was found appropriate to assess the nutritional status of the children and the problems of working and non-working mothers in feeding their children in Tumkur.

Findings and Discussion

Household deprivation status (HDS) has strongly influenced the nutritional status of pre-school children. Household deprivation status of working and non-working women has 51.28 percent and 58.33 percent of semi pucca house respectively. While 61.53 percent of working and 54.16 percent of non-working women were of nuclear family. Whereas 17.94 percent of working and 20.83 percent non-working women were of extended families. Joint families were found about 20.51 percent and 25 percent respectively in both working and non-working women. It was found that

Table 3: Feeding practice followed by working and non-working women

Variables	Working women				Non-working women			
	Yes		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%
Colostrums feeding	36	92.30	3	7.69	24	100	-	-
Pre Lacteral feeding	9	23.07	30	76.92	7	29.16	17	70.83
Complimentary food was introduced	3-6 months		7-9 months		9-12 months		Above 1year	
	No.	%	No.	%	No.	%	No.	%
Working women	9	23.17	18	46.15	-	-	12	30.76
Non working women	3	12.5	15	62.5	-	-	6	25

Table 4: Types of food given for children by working and non-working women

Type of food	Working women						Non-working women					
	Sometimes		Everyday		No		Sometimes		Everyday		No	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rice/Millet	1	2.56	38	97.43	-	-	1	4.16	23	95.83	-	-
Roots & Tubers	34	87.17	5	12.82	-	-	24	100	-	-	-	-
Meat/Fish/Egg	35	89.74	2	5.12	2	5.12	21	87.5	2	8.33	1	4.16
Vegetables	9	23.07	30	76.92	-	-	6	25	18	75	-	-
Biscuits/Bread	13	33.33	26	66.66	-	-	8	33.33	16	66.66	-	-
Fruits	32	82.05	7	17.94	-	-	17	70.83	7	29.16	-	-

maximum percent of families' i.e. 61.53 percent and 54.16 percent respectively among working and non-working women had basic facilities like source of drinking water, while only 48.74 percent of families had toilet room facilities among working women and 33.33 percent among families with non-working women. When considered economical status of the families, maximum of 64.10 percent among working and 87.5 percent among non-working women came under Below Poverty Line. In case of mother's literacy, about 28.20 percent among working and 20.83 percent among non-working women were highly educated. The household deprivation index is not a direct measure of economic condition of the household as the per capita income or expenditure or the standard of living index but a measure of the extent to which the household is deprived.

According to BMI criteria (weight for height), it was seen that prevalence of underweight among 27 girls and 12 boys of working women was not significant statistically. Among non-working women group, 14 girls and 10 boys were underweight and was not significant statistically. On the whole, the BMI of pre-school children of working women varied between the lowest being 9.73 and the highest being 16.99 and 5.42 being the lowest and 18.08 being the highest BMI among the children of non-working groups.

Children whose mothers have some education but have not completed middle school are much less likely to be stunted, wasted, or underweight than are children whose mothers are illiterate. Children whose mothers have completed middle school or higher education are even less likely to suffer malnutrition.

Maximum of 92.30 percent working women and 100 percent non-working women have feed colostrum a protein rich, watery and yellowish fluid that comes from the mammary gland during the first two or three days and differs from the regular milk. Very less percent of working women were not aware of the advantages of colostrum which contains B_{12} binding protein, antibodies against viral diseases such as small pox, polio, measles and influenza. Whereas 23.07 percent of working and 29.16 percent women feed their newborn with sweet water, or honey before feeding colostrum. Only after Exclusive Breast Feeding (EBF) for six months, 46.15 percent of working and 62.5 percent of non-working women introduced complimentary foods such as milk other than breast milk, juice of fresh fruits and soup from green leafy vegetables and solid supplements for their infant.

It is observed that 89.74 percent and 87.17 percent of working women feed their child with flesh foods and egg and roots and tubers sometimes. Whereas cent per cent and 87.5 percent of non-working women feed their child with flesh foods and roots and tubers sometimes. Many of working women feed their child with all type of foods everyday and in case of non-working women; the child was given all type of food every day except roots

and tubers. Only very few families i.e. about 5 percent followed vegetarian food pattern among working and non-working women.

Recommendations

- The findings of the present study point to a need to improve access to nutritional health care and health education for pregnant women, pre-schoolers and their caregivers. Survey findings support the proposal of including nutrition education component for maternity care providers.
- Effective economic, social and political changes, food security, personal hygiene, maternal education, nutrition education program especially for mothers are few interventions and tools to bring about change in child health.

Conclusion

Childhood malnutrition levels are still alarmingly high around the world. According to the recent report, deaths of about 55% children under 5 years of age are due to malnourishment (UNICEF, 1994).[3] In 1995, almost one third of children under 5 in developing countries were estimated to be under weight (UNACC/SCN, 1997) [8]with half living in south Asia. The nutritional status of under five is a sensitive indicator of a country's health status as well as economic condition. The study concluded that the family's socio-economic factors and mother's education are the important determinants of underweight in pre-schoolers. The impact of underweight is multifarious. It has an all pervasive impact on physical well being and socio-economic condition of a nation. Prevalence of wasting and underweight were also remarkably high among low birth weight children. The educational level of mothers was positively related to the better nutritional status of children. Educated mothers are more conscious about their children's health. They tend to look after their children in a better way. This study finding also suggests that mother's education played a significant role in reducing prevalence of underweight. Nutrition security is not just having enough food but it's the outcome of good health, a healthy environment and good care. India experienced a rapid economic boom between 1991 and 2007. However, this economic growth has not translated into improved nutritional status among young Indian children. The present study assessed the nutritional status of pre-schoolers using the anthropometric measures weight for height. The socio-economic variables were significantly associated with malnutrition in pre-schoolers.

Socio-economic-demographic factors, low maternal education, poor nutrition knowledge for mother and feeding practices for sick children seem to act mainly through prenatal factors, whereas other determinants seem to influence more directly the children's stunting and underweight. It is recommended that an improvement in societal infrastructure, better maternal education and nutrition are needed to address the child malnutrition issue.

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