

NUTRITIONAL PROBLEMS AMONG CHILDREN IN URBAN SLUM AREA

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Abstract: Nutritional problems like protein energy malnutrition, iron deficiency anaemia, Vitamin A deficiency, iodine deficiency disorders continue to threaten a large proportion of children in India. Malnutrition reflects an imbalance of both macro and micronutrients that may be due to inappropriate intake or inefficient biological utilisation due to the internal and external environment. The nutritional status and diet of children residing in slums is very unsatisfactory. Their nutritional status is worst among all urban groups. Lack of basic facilities like adequate housing, safe drinking water and sanitation makes slum dwellers susceptible and vulnerable to infections which further adversely affects their nutritional status. Major factors responsible for malnutrition in urban slum children include improper infant feeding practices, inadequate food and health security, poor environment and housing conditions, absence of responsible adult caregiver and lack of reach and coordination of public sector services. With rapid urbanisation and increasing urban migration the problem of malnutrition in urban slums is going to acquire severe magnitude and intricacy unless special interventions are initiated to combat it. In this paper an endeavour has been made to analyse the nutritional problems among children living in urban slums.

Keywords: Malnutrition, children, urban slums, infant feeding practices and health care.

INTRODUCTION

The rapid and unplanned urbanisation is a marked feature of Indian demography. The urban population of India accounts for 31.16 per cent of the total population. Urbanisation is not an evil process. It is a welcome sign of transition, but unplanned urbanisation can cause rapid migration to cities, resulting in slums having inhuman living conditions (Davis 2006). The cities and towns are expanding at a rapid pace but only a sheer volume of people manage to fulfil their basic needs. The huge increase in urban population amounts to a crisis of unprecedented magnitude in urban shelter provision. Every year, the world's urban population is increasing about by 70 million. These people need to be provided with shelter, employment and urban services. The stretched capacity of most urban economies in developing countries is unable to meet these needs, so that the informal sector is providing most of the new employment and housing in environments that have come to be known as slums, where more than half of the population in many cities and towns of developing countries are currently living and working (United Nations Human Settlements Programme (UN-Habitat) 2003). Consequently, urban poverty and hunger are increasing in developing countries.

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Lack of basic facilities like adequate housing, safe drinking water and sanitation makes slum dwellers susceptible and vulnerable to infections which further adversely effects their nutritional status. The continuing process of rapid urbanisation has negative effects on health and nutrition particularly for children living in slums. Malnutrition reflects an imbalance of both macro and micronutrients that may be due to inappropriate intake or inefficient biological utilisation due to the internal and external environment. Poor feeding practices during infancy and early childhood, resulting in malnutrition, contribute to impaired cognitive and social development, poor school performance and reduced productivity in later life. Malnutrition, therefore, is a major threat to social and economic development as it is among the most serious obstacles to attaining and maintaining the health of this important age group. There is a critical link between health and good nutrition. Interventions in health promote good nutrition and interventions in nutrition promote good health (Institute of Applied Manpower Research 2011). Therefore, it is imperative to address the nutritional problems of urban poor for multidimensional growth and development of the country.

This paper is basically descriptive and analytical in nature through which an endeavour has been made to analyse the nutritional problems among children residing in urban slums. The data used in it is purely from secondary sources according to the need of this study. There are broadly three sections in this paper. Section one deals with dimensions of the problem in which major nutritional problems- Protein Energy Deficiency (PEM), Iron Deficiency Anaemia (IDA), Vitamin A Deficiency (VAD) and Iodine Deficiency Disorders (IDDs) have been discussed. In section two various causal factors responsible for malnutrition among children have been briefly discussed. Section three dealt with addressing the problem of malnutrition and suggesting possible solution to the problem and this is followed by a conclusion.

DIMENSIONS OF THE PROBLEM

Adequate nutrition is critical to child development. The period from birth to five years of age is important for optimal growth, health and development. At this stage children are particularly vulnerable to growth retardation, micronutrient deficiencies and common childhood illness such as diarrhoea and acute respiratory infections. In developing countries, under-five mortality is largely a result of infectious diseases and neonatal deaths. Undernutrition is an important factor contributing to the death of young children. If a child is malnourished the mortality risk associated with respiratory infections, diarrhoea, malaria, measles and other infectious diseases is likely to be increased. According to third National Family Health Survey (NFHS-3) more than half (54 per cent) of all deaths before age five years in India were related to malnutrition. Because of its extensive prevalence in India, mild to moderate malnutrition contributes to more deaths (43 per cent) than severe malnutrition

(11 per cent). Although nutritional deficiency is lower in urban areas than in rural areas, even in urban areas undernutrition is very widespread. In urban areas, 40 per cent of young children were stunted, one-third were underweight and 17 per cent were wasted (Arnold, Parasuraman, Arokiasamy & Kothari 2009). This situation is even worse among the children residing in slums. They are the most deprived and unprivileged among all the urban communities. They are subjected to poverty and hunger.

The major nutritional problems particularly among children include Protein Energy Deficiency (PEM), Vitamin A deficiency (VAD), Iron Deficiency Anaemia (IDA), and Iodine Deficiency Disorders (IDD). Even today these nutritional problems continue to threaten a large proportion of Indian children. The health and nutritional status of children residing in slums is very unsatisfactory. The nutritional status of slum children is worst among all urban groups.

PROTEIN ENERGY MALNUTRITION (PEM)

PEM is the most commonly occurring form of malnutrition among children. Acute PEM, often associated with infection is a major contributor to high child mortality among the unprivileged and deprived groups. Further, malnutrition in initial stage of life has prolonged effects on the growth and functional status of an individual. Protein-calorie deficiency syndromes must be regarded as an important index of nutritional standards in the underdeveloped areas of the world and their eradication depends on improving the staple diet and weaning habits in the areas where they are prevalent (Ellis & Mitchell 1969).

NUTRITIONAL ANTHROPOMETRY

In developing countries like India, children are susceptible to malnutrition because of low dietary intakes, improper feeding practices, infectious diseases, lack of adequate care and unequal distribution of food within the family. In NFHS-3 it has been reported that almost half of the children under five years of age (48 per cent) were chronically malnourished. In other words, they were too short for their age or stunted. As per data of NFHS-3 report almost 20 per cent of children in this age group were wasted that is too thin for their height. One out of every five children in India is wasted under age five years. Nearly 43 per cent of children below five years of age were underweight. Underweight status is a combined index of chronic or acute malnutrition.

Countrywide data for the pervasiveness of malnutrition in urban slums is lacking. In the NFHS-3 report data about malnutrition among children in slums is available for only eight selective cities (Delhi, Chennai, Hyderabad, Indore, Kolkata, Meerut, Mumbai and Nagpur). Among these eight cities, the prevalence of underweight among children under age five years residing in slums was highest in

Indore with 50 per cent and lowest in Hyderabad and Kolkata with 26 per cent and 27 per cent respectively. Even in non-slum areas of these eight cities, the prevalence of underweight was ample. More than 4 out of every 10 children in Mumbai, Meerut and Delhi were stunted. In the NFHS-3 report it came into light that stunting was generally higher in slum areas than in non-slum areas of these eight cities. The prevalence of wasting was very high in both slum and non-slum areas of Indore. In most of these cities the slum/non-slum differentials in wasting was small.

Most data on prevalence of malnutrition in urban slums is available from individual studies. In a study conducted in slums of Delhi it was reported that the prevalence of undernutrition was 62.3 per cent in the age group of 9-12 months and 79 per cent in the age groups of 13-24 months and 25-36 months. In this study, it was also demonstrated that the prevalence of maximum malnutrition amongst the children who were having low food intake (Bhat, Amin & Shah 1997). A study conducted in slums of Varanasi reported that the prevalence of overall undernutrition and severe malnutrition was 63.97 per cent and 5.24 per cent respectively amongst at risk children (Harishankar et. al., 2004). In a Calcutta based study malnutrition was observed to be higher in elder and female children (Sen 1994). Another important factor (effect of birth order on malnutrition) has been studied by Delhi based study (Ray et. al., 1990) and Bhopal based study (Dwivedi, Banerjee & Yadav 1992) observing undernutrition to be more common amongst children of higher birth order. Poor standard of living comes out to be an important risk factor for undernutrition.

In the last few decades the incidence of PEM among children has declined in the country but it is still quite high. Despite of several efforts to improve the nutritional status of young children there has not been significant improvement in their nutritional status. The proportion of children under three years of age who were stunted decreased by less than one percentage point per year over the seven years between the second and third National Family Health Surveys, from 51 per cent in NFHS-2 to 45 per cent in NFHS-3. The percentage of children who were underweight also decreased, but only by three percentage points i.e. from 43 per cent in NFHS-2 to 40 per cent in NFHS-3. In urban areas, the proportion of underweight children under three years of age decreased by 4 per cent between the period of two surveys. However, the situation of wasting among young children has worsened over a period of time, it has increased from 20 per cent in NFHS-2 to 23 per cent in NFHS-3.

DIETARY INTAKE AND INFANT FEEDING PRACTICES

Adequate dietary intake and nutritional status among children are important for their own growth, development and function. Diet in all the stages of childhood needs to be taken seriously because of its potential for producing normally developed

children as well as determining their lifelong health and thus having an impact on nation's health (Barasi 2003). Proper infant feeding, starting from time of birth is important for the physical and mental development of the child. The timing and type of supplementary foods introduced in an infant's diet also have significant effects on the child's nutritional status (Ghosh & Shah 2004).

It has been recommended that breastfeeding should begin immediately after childbirth and for the first six months of life infants should be exclusively breastfed. Exclusive breastfeeding is recommended because breast milk is uncontaminated and contains all the nutrients necessary for children in the first few months of life. In addition, the antibodies in mothers' breast milk give child considerable immunity towards diseases (International Institute for Population Sciences (IIPS) & Macro International 2007). After a period of six months, adequate and proper complementary food should be incorporated in the infant's diet in order to provide adequate nutrients for overall growth and development. Recommendations state that breastfeeding should continue along with complementary food through the second year of life or beyond.

Although it is recommended that breastfeeding should begin immediately after birth, a very small proportion of children are breastfed within first hour of birth. NFHS-3 report documented that only 30 per cent and 65 per cent of women in urban area started breastfeeding in the first hour and first day of childbirth respectively. Although the percentage of early initiation of breastfeeding is higher in urban areas as compared to the rural areas, but even in urban areas only 3 out of every 10 children are breastfed within the first hour after birth. As per NFHS-3 report 46 per cent children below six months of age were exclusively breastfed and only 21 per cent of children age 6-23 months were fed according to all three Infant and Young Child Feeding (IYCF) recommended practices.

A transition in the lifestyle of women who live in urban slums, from the role of wife and a mother to members of workforce demands a lot of compromise in their family and child rearing practices. Mothers who involve in highly labour intensive task do not get sufficient time to recuperate after delivery. This further stresses mother's nutritional status and reduces her bodily reserves, which in turn affects lactation performance of mothers leading to early weaning and early introduction of improper supplementary foods (Rode 2009). Young children are fed insufficient number of times by other care givers, who may be older siblings, relatives or neighbours. Available health facilities for pre and postnatal care, immunisation and communicable diseases are not utilised properly because of mother's involvement in unorganised sector. As a result the young children in slums are deprived of maternal care.

The data from urban slums repeatedly reported that although breastfeeding was almost universal, exclusive breastfeeding was practiced only in 30-40 per cent of children under 4 months of age (Anej et. al., 2001). A major proportion of children

were first put to breast on the third day after birth and colostrums were discarded in as much as 90 per cent of children in slums (Subbulakshmi, Udipi & Nirmalamma 1990). The usage of prelacteal feeds is very common. The use of feeding bottles, animal milk and commercial milk formulae for feeding young children is almost universal. The introduction of complementary food is quite delayed and the food is not given to children consistently and it is also low in energy density. Moreover, the children were fed in inadequate amounts and in unhygienic conditions. The children in urban slums are at higher risk of malnutrition because of late introduction of semi-solid food than the recommended age.

IRON DEFICIENCY ANAEMIA (IDA)

IDA is the most prevalent micronutrient deficiency all over the world which is affecting more than a billion people. Anaemia is a serious concern for young children, because it can result in impaired cognitive performance, behavioural and motor development, coordination, language development and scholastic achievement, as well as association with increased morbidity from infectious diseases (Ghosh & Shah 2004). Countrywide data from NFHS-3 documented that nearly 63 per cent of children up to the age of five years in urban areas and 72 per cent in rural areas had anaemia. Data from urban slums is available only from individual studies. A study conducted in urban slums of Meerut reported prevalence of 60 per cent with 24 per cent having severe anaemia (Hb <7.0 g/dL) (Jain et. al., 2000). In a study from urban slum Integrated Child Development Services project in Delhi, the prevalence of anaemia among children 9-36 months of age was 64 per cent (Kapur et. al., 2002). Such high prevalence of anaemia is an issue of major concern. In another study conducted among school children of East Delhi slums it was found that 42 per cent of them were anaemic (Gombe et. al., 2003).

The factors responsible for anaemia identified from these studies were poor dietary iron intake, delayed introduction and poor quality of weaning food. It was found that exclusive breastfeeding for at least first four months played a protective role. Available data also indicated that although the prevalence of intestinal parasites among urban slum children is quite high, it had no significant role in the causation of anaemia. Nutrition education and iron supplementation can play an important role in improving the iron status of children in slums. In a study conducted in an urban slum of Delhi it was revealed that nutrition education did had a positive effect on the iron status possibly by improving the dietary iron intake (Kapur, Sharma & Agarwal 2003).

VITAMIN A DEFICIENCY (VAD)

Vitamin A is an important micronutrient for the immunity system and it helps in maintaining the body's epithelial tissue. It has been recommended by the

Government of India that children should be given Vitamin A supplement every six months from age nine months to three years. VAD can cause eye damage and it can also increase the severity of infections among children. VAD has been recognised as a major controllable public health and nutritional problem. It has been estimated that 5.7 million children in India suffer from eye signs of VAD. Out of 37 million people across the globe who are blind, about 15 million are from India (India Human Development Report 2011). It also contributes significantly, even at subclinical levels, to morbidity and mortality from common childhood infection. Studies suggest that ill health and risk of death from some infection are also increased even in children who are not clinically deficient, but whose vitamin A body store is depleted. Though one of the main causes of xerophthalmia is poor intake of vitamin A rich foods, it is also associated with poverty, ignorance, faulty feeding habits among entire population but young children in particular (Khan & Mahmood 2012).

The result of dietary intake assessment in NFHS-3 revealed that 50.3 per cent people in urban areas consumed food rich in Vitamin A. Data available from urban slums is limited. A cross-sectional study was conducted among 1000 slum children in Bhopal and it was found that nearly 23 per cent children were Vitamin A deficient (Dwivedi, Banerjee & Yadav 1992). In another cross-sectional study conducted among children up to six years of age in urban slums of Nagpur, it was revealed that 9 per cent of children had xerophthalmia. Although, the result of dietary intake assessment showed that nearly 91 per cent children consumed Vitamin A below recommended levels (Khandait et. al., 1999).

Vitamin A is a crucial component for maintaining good health lifelong. Since breast milk is a natural source of vitamin A, promoting breastfeeding is best way to protect children from VAD. For deficient children, the periodic supply of high-dose vitamin A in swift, simple, low-cost, high-benefit interventions can play a crucial role. All these steps can make remarkable contribution in reducing child mortality rate.

IODINE DEFICIENCY DISORDERS (IDDs)

IDD continue to be a major public health problem in the developing countries like India, especially for pregnant women and young children. The most disastrous consequences of iodine deficiency are increased prenatal mortality and mental retardation. Iodine deficiency is the major cause of preventable brain damage in childhood. Low dietary intake is the main factor which is responsible for iodine deficiency. Iodine deficiency is known to cause goitre and cretinism. Children suffering from IDDs can grow up stunted, mentally retarded and it may also result in impairment of normal movement, speech and hearing.

In NFHS-3 report it has been documented that nearly 68 per cent households in urban areas used iodised salt for cooking. Information from urban slums is scarce. In a Delhi based study it was found that the prevalence rate of goitre declined to 8.6 per cent in 1996 after universal salt utilisation (Kapil et. al., 1996). A study was conducted on 6-12 years school going children in urban areas of Udaipur and it was revealed that goitre prevalence was 8.4 per cent and biochemical deficiency of around 8 per cent (Pradhan & Choudhry 2003).

The data available from slums suggests a high prevalence rate of iodine deficiency. In a report based on pregnant women residing in Delhi slums it was revealed that IDD prevalence was about 23 per cent (Kapil et. al., 1999). In a study conducted on 866 adolescents from Mumbai slums it was reported that the prevalence rate of goitre was around 56 per cent in both girls and boys with a visible goitre rate of 10-11 per cent (Dodd & Samuel 1993). Although the situation has definitely improved after universal salt iodisation, however IDD still continues to be a nutritional problem among children in India.

VITAL ISSUES

It is essential to understand several etiological elements of malnutrition in order to systematically formulate strategies to combat the problem. Undernutrition is a very complex entity. Purchasing power, socio-economic factors, cultural factors, urban rural settings play a pivotal role in its etiology (Narkhede et. al., 2011) The limited data available from slums shows that the most common causal factors of malnutrition includes poor maternal nutrition during conception and *in utero* undernutrition which results in low birth weight, improper breastfeeding, delayed complementary feeding, insufficient utilisation of nutrients due to diseases and infections. High rate of malnutrition among young children is also due to the lack of awareness concerning their food requirements and absence of adult care giver. The period of six months and two years when the child is dependent on someone to feed him/her, has maximum malnutrition. Also, there are many taboos and beliefs regarding food suitable for a child without any scientific basis. Absence of household food security, improper preventive and curative healthcare services, inadequate knowledge about proper care and discriminatory food distribution practices further add to the problem (Ghosh & Shah 2004).

The major factors responsible for poor nutritional status of urban slum children could be broadly divided into four categories which are as follows:

1. Improper food practices which includes inadequate infant feeding practices, lack of exclusive breastfeeding, late incorporation of solid mushy food and dilution of milk.
2. Diseases which mainly occur due to poor housing and living conditions, improper hygiene and sanitation facilities and insufficient access and utilisation of health services.

3. Improper caring practices which includes absence of responsible adult caretaker, traditional beliefs and faith, parental literacy and poverty.
4. Service issues which consists of lack of access and coordination of public health services, improper training and supervision of service providers in nutritional counselling, inadequate implementation of services and programmes and inefficient targeting of the urban poor.

ADDRESSING THE ISSUES

Health care system in India has so far accorded more priority to rural population as rural population is far more than the urban and generally it is believed that they have poor access to health care facilities. However, the urban sector now needs to be given more attention. It is essential that the steps taken to combat malnutrition should be target specific and directed at the quantitatively important determinants of nutritional status. The quantitative importance of a factor depends on its individual effect, magnitude and prevalence; although, issues such as cultural acceptability, cost effectiveness and political feasibility are also essential determinants of any intervention programme. Following are some of the possible suggestion to address the issues related to malnutrition:

ENCOURAGING HEALTHY INFANT FEEDING PRACTICES

In current situation it is clearly evident that promoting optimal breastfeeding and infant feeding practices is the need of the hour. Thus, it is essential that knowledge about optimal infant feeding services to mothers and other family members should be provided by skilled staff. Majority of the interventions that are formulated to improve infant feeding practices involve the healthcare system. Even the interventions that are implemented outside the healthcare system seems to get affected by what happens inside the healthcare system as mothers' perception about infant feeding practices are influenced by the healthcare system (Ghosh & Shah 2004). Interventions in healthcare facilities needed to be connected with outreach efforts so that interventions can reach women and their families effectively. Education and counselling should be made indispensable part of breastfeeding awareness programme. It is a fact that these interventions need more intensive training, strong organisation, highly skilled and motivated staff, but at the same time for an intervention to be effective and successful, it is imperative to know by whom it is implemented instead of what specifically is implemented. For a better access to target population the promotional strategies should be community based. The notion of peer counselling is quite encouraging (Morrow et. al., 1999).

Most of the interventions required in promoting healthy infant feeding practices can be delivered through existing programmes like urban Integrated Child Development Services (ICDS) and Reproductive and Child Health (RCH)

programme. However, several infant feeding components are required to be incorporated into these services as well and their quality needs to be improved. The ICDS operation needs to bestow as much attention on urban slums as on rural areas and anganwadis should also be set up in order to provide services for women and their children. Mobile creches are needed to be set up so that infants and young children of poor working women involve in labour intensive jobs or in factories, can be breastfed. Actions to provide maternity leave for women working in unorganised sector are worth to take into account.

NUTRITIONAL SUPPLEMENTATION

Experiences from the past shows that the programmes consisting of improved dietary practices and overall socio-economic development rather than distribution of synthetic vitamins and supplements can bring about significant improvement in the nutritional status of population (Gopalan & Aeri 2001). The supplementation of nutrient bullets appear to be easy and convenient but such interventions have often proved to be ineffective and at the same time quite expensive. However, authentic scientific justification and practical needs exists for the manufactured nutrients in some conditions like iodine and iron/folic acid deficiencies.

The cost effectiveness of distributing nutritional supplements to children in comparison to nutritional advice should be scientifically checked in a proper programme setting and the result would help in determining the need of investing a huge proportion of budget allocated for health for the former option on a regular basis. Evidences available from the urban slums of Bangladesh clearly indicate that targeted nutrient supplementation programmes have only a restricted impact on the nutritional status of children as compared to the nutritional education (Fauveau et. al., 1992).

The scheme for improvement of nutrition of young children should include equilibrium between curative and preventive measures. There is urgent need to analyse and medicate maternal and child malnutrition in urban slums. This needs an improved training and guidance of service providers in nutritional counselling. A promising community based step in this direction is 'Positive Deviance' approach which is a methodology for finding out what families of well-nourished are practicing in the community (Counterpart International 2002). This method is based on sustainable behavioural change to rehabilitate undernourished children, sustaining health practices and preventing future malnutrition. Although, this method requires a dedicated volunteer power other than intensive training and supervision.

INCREASING FOOD SECURITY

In the past food security has been largely depicted as proper availability of food for the country as a whole. Only food production cannot guarantee food and

nutritional security. The availability of requisite food at household level does not necessarily mean that the food is equally distributed according to the bodily needs of the members. In this context mostly women of childbearing age and children suffer. Improper distribution of food within the family and faulty choice of food add considerably to the problem of undernutrition among children and women in poor families. A large proportion of low birth weight deliveries and infant malnutrition results due to lack of awareness about the special nutrient requirement of pregnant women and children. Nutritional education can play a significant role in this direction.

For improving urban food security a more direct, focused and integrated strategy is required. To improve the economic well being of the poor it is essential that government should set up macro-economic policies. Macro-economy encourages growth and such labour policies that do not discriminate against them. Educating women and providing them necessary information on childcare are important components of a strategy to improve nutritional status. Mass media can also play a crucial role in imparting knowledge about nutrition. By providing vocational training, the income generating capacity of urban poor can be increased, thus increasing their nutritional security.

OPERATIONAL ISSUES

Addressing the issue of malnutrition in urban areas would require a clear-cut and extensive strategy that comprises of government, non-governmental and community organisations and the poor people themselves.

The literature reviewed so far shows that poor people migrating from rural to urban areas do not get much benefitted in terms of nutrition in spite of better employment opportunities and health facilities likely to be available in urban areas. This reveals that urban poor do not have access to these facilities in adequate manner. In the current situation, welfare programmes do not seem to benefit nutritional status of slum children much. However, ICDS being one of the largest nutritional programmes in the country has great potential in achieving the goals. Strengthening of ICDS in terms of delivery, quality and coordination is required in order to make them more focused and tailored to the needs of slum dwellers. The concentration should be on health education and nutrition activities rather than only on distribution of food. Food supplementation should be used just as a magnet for providing other services under ICDS programme. Nutritional counselling should be made an important constituent of the nutritional services provided under ICDS scheme. Better training and guidance of volunteers and workers with emphasis on intersectoral cooperation and coordination will certainly improve the quality and impact. Participation of community leaders, non-governmental and community based organisations should be encouraged.

THE ULTIMATE SOLUTION

The slum improvement approaches should be preventive in nature to check the rural migration on one hand and prevent the haphazard expansion of urban areas in the adjacent agricultural regions on the other hand. In this context, adequate implementation of poverty alleviation and employment programmes is essential to curb the migration of the rural population to urban areas. These programmes should be properly coordinated with other ongoing health, nutrition, economic and education programmes mainly focused on slums. The action plan should be devoid of vote bank politics. Relocation and rehabilitation in neighbouring areas without providing infrastructural facilities is not in the interest of the urban poor. It is expected that the political parties should direct their energies in more organised and constructive manner for the upliftment of the poor.

CONCLUSION

It can be concluded that problem of malnutrition in India is not only of alarming magnitude, but also of great intricacy. Tackling malnutrition in urban slums requires a holistic approach, especially when targeting population of infant and young children. For effective implementation of this approach several interventions are needed. Nutrition education should address family as a whole and not just the women. In slum environment, children are susceptible to a host of diseases and infections that compromise their health and immunity, and, in turn, their nutritional status. Malnutrition and childhood diseases are interconnected and mutually reinforce one other. It is therefore extremely important that childhood diseases are identified, and appropriately treated, to contain the effect of the diseases on child health. Service providers should be equipped with knowledge and skills to implement a nutrition programme efficiently. Trained community link workers do not only enhance access to healthcare for the entire community but also deliver health care services and education to mothers and children where the public health care system is absent. Intersectoral collaboration is recognised as one of the strategies to address the problem of malnutrition.

References

- Aneja, B., P. Singh, M. Tandon, P. Pathak, C. Singh & U. Kapil (2001). 'Etiological factors of malnutrition among infants in two urban slums of Delhi', *Indian Pediatrics*, 38(2): 160-65.
- Arnold, F., S. Parasuraman, P. Arokiasamy & M. Kothari, 2009. *Nutrition in India. National Family Health Survey (NFHS-3), India, 2005-06*. Mumbai: International Institute for Population Sciences (IIPS) and ICF Macro.
- Barasi, M.E. (2003). *Human Nutrition: A Health Perspective*. London: Arnold Publishers.
- Bhat, I.A., S. Amin & G.N. Shah (1997). 'Impact of sociomedical factors on pre-school malnutrition: an appraisal in urban setting', *Indian Journal of Maternal & Child Health*, 8(1): 5-8.

- Counterpart International (2002). *Jeevan Daan (Gift of Life) Child Survival Program, Second Annual Report*. Ahmedabad: Counterpart India.
- Davis, M. (2006). *Planet of Slums*. London: Verso Publishers.
- Dodd, N.S. & A.M. Samuel (1993). 'Iodine deficiency in adolescents from Bombay slums', *National Medical Journal of India*, 6(3):110-13.
- Dwivedi, S.N., N. Banerjee & O.P. Yadav (1992). 'Malnutrition among children in an urban Indian slums and its association', *Indian Journal of Maternal & Child Health*, 3(3): 79-81.
- Ellis, Richard W.B. & Ross G. Mitchell (1969). *Disease in Infancy and Childhood*. Great Britain: The English Language Book Society and E. & S. Livingstone Ltd.
- Fauveau, C., M. Siddiqui, A. Briend, R. Silimperi, N. Begum & V. Fauveau (1992). 'Limited impact of a targeted food supplementation programme in Bangladesh urban slum children', *Annals of Tropical Pediatrics*, 12(1): 41-46.
- Ghosh, S. & D. Shah (2004). 'Nutritional problem in urban slum children', *Indian Pediatrics*, 41(7): 682-96.
- Gomber, S., Bhawna, N. Madan, A. Lal & K. Kela (2003). 'Prevalence and etiology of nutritional anaemia among school children of urban slums', *Indian Journal of Medical Research*, 118 (Oct): 167-71.
- Gopalan, C. & B. T. Aeri (2001). 'Strategies to combat under-nutrition', *Economic and Political Weekly*, 36(33): 3159-69.
- Harishankar, S. Dwivedi, S.B. Dabral & D.K. Walia (2004). 'Nutritional status of children under 6 years of age', *Indian Journal of Preventive & Social Medicine*, 35(3): 3-4.
- Institute of Applied Manpower Research (2011). *India Human Development Report 2011: Towards Social Inclusion*. New Delhi: Oxford University Press.
- International Institute for Population Sciences (IIPS) & Macro International (2007). *National Family Health Survey (NFHS-3), 2005-06: India: Volume I*. Mumbai: IIPS.
- Jain, S., H. Chopra, S.K. Garg, M. Bhatnagar & N. Singh (2000). 'Anaemia in children: Early iron supplementation', *Indian Journal of Pediatrics*, 67(1):19-21.
- Kapil, U., N. Saxena, S. Ramchandran, A. Balamurugan, D. Narayan & S. Prakash (1996). 'Assessment of iodine deficiency disorders using the 30 cluster approach in the National Capital Territory of Delhi', *Indian Pediatrics*, 33: 1013-17.
- Kapil, U., P. Pathak, M. Tandon, C. Singh, R. Pradhan & S.N. Dwivedi (1999). 'Micronutrient deficiency disorders amongst pregnant women in three urban slum communities of Delhi', *Indian Pediatrics*, 36(12): 983-89.
- Kapur, D., K.N. Agarwal, S. Sharma, K. Kela & I. Kaur (2002). 'Iron status of children aged 9-36 months in an urban slum Integrated Child Development Services project in Delhi', *Indian Pediatrics*, 39(2): 136-44.
- Kapur, D., S. Sharma & K. N. Agarwal (2003). 'Effectiveness of nutrition education, iron supplementation or both on iron status in children', *Indian Pediatrics*, 40(12):1131-44.
- Khan, S. & S.E. Mahmood (2012). 'Vitamin A deficiency among school children of Bareilly: Crucial role of nutrition education', *National Journal of Medical Research*, 2(2): 188-90.
- Khandait, D.W., N.D. Vasudeo, S.P. Zodpey, N.N. Ambedkar & M.R. Koram (1999). 'Vitamin A intake and xerophthalmia among Indian children', *Public Health*, 113(2): 69-72.
- Morrow, A.L., M.L. Guerrero, J. Schult, J.J. Calva, C. Lutter & J. Bravo (1999). 'Efficacy of home-based peer counselling to promote exclusive breastfeeding: A randomized controlled trial', *The Lancet*, 353(10199): 1226-31.

- Narkhede, V., S. Likhar, S. Pitale & P. Durge (2011). 'Nutritional status and dietary pattern of underfive children in urban slum area', *National Journal of Community Medicine*, 2(1): 143-43.
- Pradhan, R. & M. Choudhry (2003). 'Assessment of iodine deficiency disorders in urban areas of Udaipur district, Rajasthan', *Indian Pediatrics*, 40(5): 406-409.
- Ray, S.K., P. Roy, S. Deysarkari, A. Lahiri & B.B. Mukhopadhyay (1990). 'A cross sectional study of undernutrition in 0-5 year age group in an urban community', *Indian Journal of Maternal & Child Health*, 1(2): 61-62.
- Rode, S. (2009). 'Does demolition of slums affects on pre-school children's health in Mumbai?', *Theoretical & Empirical Researches in Urban Management*, 1(10): 63-74.
- Subbulakshmi, G., S.A. Udipi & N. Nirmalamma (1990). 'Feeding of colostrum in urban and rural areas', *Indian Journal of Pediatrics*, 57(2):191-196.
- United Nations Human Settlements Programme (UN-Habitat) (2003). *The Challenges of Slums: Global Report on Human Settlements 2003*. London: Earthscan Publications.