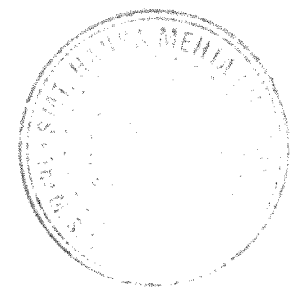


INTRODUCTION

Chapter I

INTRODUCTION

Grim Scenario of Malnutrition in India and Gujarat

Childhood malnutrition continues to be one of the world's most serious developmental problems. In the developing world, 146 million children under five are underweight – and more than half of them live in South Asia. About three fourth of the underweight children in the developing countries live in just 10 countries and among those countries, India has the largest number of underweight children at 57 million. Although India has been making modest improvements, but this progress is currently insufficient to reach the target of millennium development goals, linked to nutrition (UNICEF 2006).

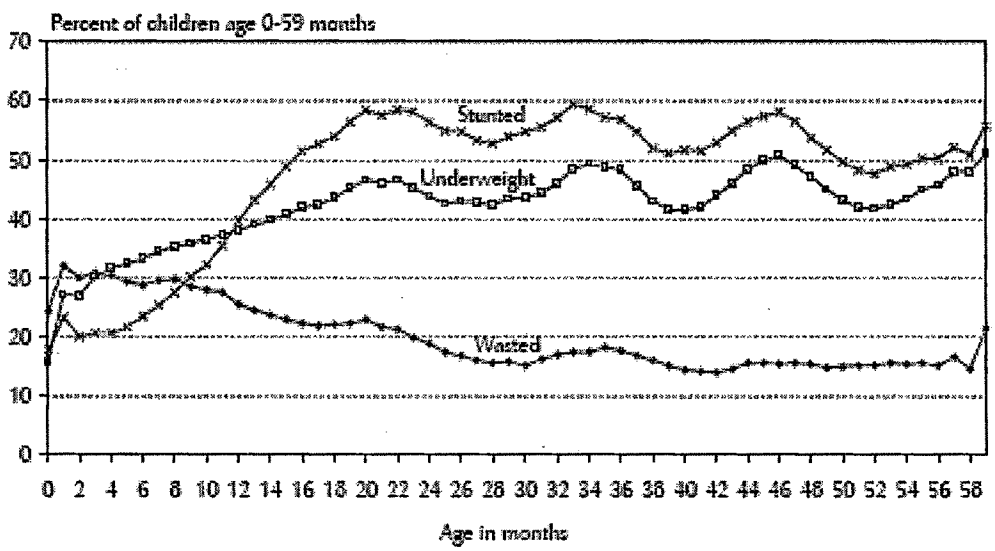
According to latest reports, 46% children below three years in India are underweight and 38% are stunted (NFHS-3 India 2005-2006). In Gujarat, the prevalence of underweight (47%) and stunting (42%) among children under 3 years is as high as the national average (NFHS-3 Gujarat 2005-2006). According to the Multi Indicator Cluster Sampling Survey (2001) carried out in Vadodara slums, 43% children under five are malnourished.

Vulnerable Age for Malnutrition

It is recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioural development. Unfortunately, worldwide research demonstrates the grim scenario that growth faltering begins around six months of life, just as infants begin to receive foods to complement their breastmilk intake (WHO/UNICEF 1998). This growth faltering peaks at about 2 years of age after which it is very difficult to reverse stunting (Martorell et al 1994, Shrimpton et al 2001).

The National Family Health Survey (2005-2006) data also revealed that the proportion of children who are stunted or underweight increases rapidly with the child's age through age 20-23 months (**Figure1.1**). Undernutrition decreases thereafter for stunting and levels off for underweight. For both of these measures, undernutrition peaks at age 20 months. Most studies report that about half of the children are malnourished by the age of two years.

Figure 1.1 Peak Age for Undernutrition in India



Source: NFHS-3, 2005-2006

Consequences of Malnutrition

Malnutrition leads to adverse consequences, harmful both to individuals and society.

- It is attributed as an underlying cause of about 60% deaths of children 5 years (WHO 2003 a).
- It retards growth and normal development. Malnourished children who survive may be locked into a vicious cycle of recurring sickness and faltering growth, often with irreversible damage to their cognitive and social development (UNICEF 2006).
- It compromises productive capacity of adults. Productivity losses, poor cognitive development, and increased health care costs in malnourished populations lead to

significant economic losses at both the individual and national level (Levinson and Bassett 2007).

- In girls and women, it leads to an unending cycle of inter generational malnutrition. When girl children are undernourished, their future ability to bear healthy children is threatened and thus the cycle of malnutrition continues (UNICEF 2006).

Causes of Malnutrition: Role of Care

According to Haddad (1997), it has been firmly established that eradication of child undernutrition depends on three factors:

- Household and individual food security
- Access to health services and a healthy environment and
- Adequate provision of behaviours that have the collective lable of Care

Thus child survival not only depends on food security and health care services, but also on care for girls and women and children. **Care is the provision in the household and in the community, of time, attention and support to meet the physical, mental and social needs of growing child and other household members (International Conference on Nutrition 1992).**

For the child, adequate Care is important for survival but also to ensure optimal physical and mental development, and good health. The relation between good nutrition and Care is stronger for children who depend on others for feeding and for other actions that contribute to their nutritional well-being (Latham 1995).

To ascertain adequate Care of children, protection of good caring practices in a society; support for mother and families to help them maintain good caring practices and promotion of positive caring practices to improve the nutrition and health of children is essential (UNICEF 1990).

Caregiving Behaviours

Care behaviours can be grouped into various activities practiced by the mother or the alternate Caregiver (Engle et al 1997 a):

- Breastfeeding and feeding of young children.
- Hygiene practices: personal hygiene, food preparation and storage and safe feeding practices.
- Home health practices
- Psychosocial behaviours.
- Care for women.

In most developing countries, the mother is usually the main Caregiver for the infant and very young child, but in the common extended family, grandmothers, siblings, fathers, and other family and non-family members often also contribute to child Care (Latham 1995).

The Care behaviours associated with young children nutrition and health are explained below.

Infant Feeding Behaviours Including Breastfeeding and Complementary Feeding

Among the most effective interventions for reducing under five mortality in developing countries, promotion of adequate breastfeeding and complementary feeding practices have been ranked to be first and third respectively (Jones et al 2003).

The appropriate feeding practices based on the recommendations given by PAHO/ WHO (2003) and National guidelines on infant and young child feeding (2006) of the Government of India are:

- Newborn feeding and Breastfeeding: Initiate breastfeeding in the first hour of birth, feed colostrum and avoid feeding prelacteals (e.g. glucose water, honey water) after birth, breastfeed exclusively for the first 6 months (no water) and continue breastfeeding until the child is at least two years of age.

- Complementary feeding: Initiate complementary feeding at 6 months, feed appropriate quantity, consistency and frequency of complementary food depending on the age of the child, feed variety of foods including protective foods (fruits, vegetables, milk and milk products, egg, meat, poultry or fish), feed responsively/actively (encouraging the child to eat and not force feeding, feeding when the child is hungry, feeding from a separate vessel, balancing child vs. Caregiver control of eating, using an affectionate or warm style during feeding).

Hygiene Behaviours and Home Health Practices

Food hygiene during preparation, storage and feeding is important because the consumption of contaminated foods is a major cause of diarrhoea. Personal hygiene and cleanliness of the home environment is also important to reduce the level of contaminants (Engle et al 1997 a). Good home health practices help prevent illnesses and through good treatment, reduce the negative impact that illnesses have on children's growth and development. Home health behaviours consist of: home management of illness (prevention of illness, its diagnosis and subsequent home treatment), health service utilization and home-based protection.

Psychosocial Behaviours

These behaviours promote congnitive development of the child and include responsiveness, warmth, love and attention and stimulating learning.

Care for Women

Care for women represents a number of behaviours on the part of the family to support women including making sure that they have equal access to education, receive adequate prenatal care (providing appropriate rest time or increased food intake) and safe birthing.

However, research in India as well as Gujarat reveal that Caregiving behaviours particularly breastfeeding, complementary feeding and hygiene practices are inappropriate (NFHS-3 2005-2006, Kanani et al 2005).

Resources for Care

A Caregiver's capacity of providing adequate Care to the child depends on his/her own nutritional status and on the availability of resources for Care at household and community level (Jonsson 1995). For example:

- **Education, knowledge and beliefs of the caregiver:** Studies indicate that more educated women have increased knowledge of appropriate child rearing and tend to commit more time and effort to child Care than less educated women (Guldan et al 1993, Klemesu et al 2000). They are also more likely to seek help if a child is sick and to participate in community health and nutrition programs (Joshi 1994, Caldwell 1986, Barrera 1990, Cebu study team 1991, Thomas et al 1990).

- **Health and good nutritional status of the Caregiver:** Women's health and nutritional status assume importance as a resource for Caregiving because adequate Caregiving is physically as well as mentally demanding. Ill health, which results in reduced work capacity, fatigue, apathy, or depression might limit Caregiving ability. (Winkvist 1995). Poor dietary intake, low haemoglobin levels, and low vitamin B6 status of the mothers were related to less time spent on Care, less response to infants' vocalization, less vocalization to infants and less physical contacts with toddlers (Wachs et al 1992, Rahmanifar et al 1993, Allen 1993).

- **Mental health, lack of stress, and self-confidence of the Caregiver:** Maternal depression and stress has been linked with poor Caregiving and problematic outcomes for children in United States (Rutter 1990). However, despite reports of anxiety and depression among women in developing countries, studies linking psychological factors with child Care have not been done (Engle et al 1997 b).

- **Autonomy, control of resources and control of intrahousehold allocation:** Many studies like those by Haddad and Hoddinott (1994) find that mothers are more likely to use funds, which are under their control for children's nutrition than are other family members. However in many societies, mothers have a low status and do not

have a say in decision making regarding the Care and feeding of their young children. These decisions may be made by the father or mother-in-law (Engle et al 1997 b).

- **Reasonable workloads and adequate time available:** Long working responsibilities of women in agricultural activities as well as in household chores (Leslie 1988, Huffman 1987) and multiple demands on their time result in little time for child Care (Engle et al 1997 a). Studies reveal a positive (Lamontagne et al 1998) as well as negative (Popkin 1980) relation between women's work and child Care and health. Very young infants are at risk of low growth when their mothers are from poor households, are engaged in time intensive production activities, have little control over income allocation, or who do not have good alternate Caregivers (Engle et al 1997 b).

- **Social support from the family members and the community:** Social support refers to the help of the community and family to the Caregiver, and includes emotional support, knowledge support, and actual assistance, which can reduce workloads and increase the amount or quality of Caregiving available.

  Support from other family members in child Care may influence the quality and amount of Care provided, both directly through freeing up the mother's time, and indirectly through influences on the mother, such as reducing her stress. In many societies, grandmothers – and to a lesser extent fathers – are an important source of emotional and informational support, which is likely to influence the quality of child Care and thus child's nutritional status. However, the quality of the alternate Caregiving is rarely investigated and few studies have considered the effect of fathers and grandmothers on child Care (Esterik 1995).

How do Children's Characteristics Affect Care?

Apart from resources of Caregiving, the characteristics of a child also influence the Care behaviours of the mother/Caregiver. For example, anorexic children require more

persistent feeding than children with strong appetites do and a difficult or irritable child will probably evoke different and perhaps less patient Caregiving than a easy -to-manage child.

In addition to temperament (easy or difficult), the child's health and nutritional status (well or poorly nourished, anemic or iron replete) affects how responsive a child is, and can have impact on Caregiving behaviour. Gender of the child is another characteristic which represents risk for children, especially girls due to the preference for a boy child and discrimination against girls in South Asian region. Girls have been found to receive less portion of the family food, breastfeeding and health care as compared to boys (Engle et al 2000).

A Research Agenda for Understanding and Strengthening Care

- Much remains to be learnt about Care practices in general and those related to feeding in particular. Descriptive, ethnographic studies of Care and feeding are required such as beliefs about how the mother should respond to child's food refusal and the links between child nutrition and development.
- The relationship between feeding styles, Caregiver interaction and children's development should be explored.
- The mechanisms through which resources for Care influence Care practices and children's nutritional status should be examined. (Engle et al 2000).

Need for intervention studies

Interventions which change Care practices regarding feeding can have short-term and long-term effects on Caregiving behaviour and child's nutritional status (Caulfield et al 1999, Engle et al 2000). Intervention studies that include Care should focus on behavioural components of Care and nutrition; especially the motivating as well as deterrent factors for the Caregivers for improved behaviour.

Finally, it is important to be aware of the resources needed for the additional Caregiving usually recommended by the intervention. For example the the importance

of family support, the time and energy available to Caregiver and energy to follow the recommendations (Engle et al 2000).

Community Based Interventions for Improving Care and Feeding Behaviours

The Global strategy on IYCF (WHO 2003 a) states that mothers should have access to skilled support to help them initiate and sustain appropriate feeding practices, to prevent difficulties and overcome them when they occur. Community-based networks including community-based workers, working within, or closely with, the health care system, have been shown to help mothers in initiating and sustaining appropriate feeding practices. Building their capacity should therefore be an essential element of efforts to improve infant and young child feeding and Care.

It has been recommended that community based interventions supporting young child feeding and Care should be integrated into existing programmes and initiatives, involving various sectors (WHO 2003 a).

Community based studies to improve breastfeeding and complementary feeding have been undertaken around the world. For example, in a successful year-long rural community-based pilot nutrition education intervention in China, village nutrition educators (local women's affairs officials or village doctors already functioning in the village, n=24 for 24 villages) were mobilized and trained to make monthly growth monitoring and complementary feeding counseling visits to all pregnant women, and families with infants born during the intervention in the study villages (Guldan et al 2000). Other interventions have also employed home visits and group meetings by trained community based volunteers, community Health Committee members and local Health Surveillance Assistants to improve caring practices especially those related to breastfeeding, complementary feeding, active feeding and hygiene practices among mothers of young children (Brown et al 1992, Roy et al 2005, Hotz and Gibson 2005).

In India also (Bhandari et al 2004) a community based study in Haryana (cluster randomized controlled trial in 8 communities: 4 intervention and 4 control), employed among many means the monthly home visit strategy through trained health - nutrition workers who gave counseling on locally developed complementary feeding recommendations, supported by the ANMs (Auxillary Nurse Midwife). Another successful mobilization of community volunteers in Agra district in Uttar Pradesh involved training and following socially aware women *'Bal Poshan Mitra'* (as part of a larger community mobilization program) to improve maternal and child health, backed by community support system (Nandan 2004).

In the above studies, the mobilization of community volunteers was successful in significantly improving breastfeeding, complementary feeding, growth monitoring and health care practices in the intervened families having children below two years.

Women's Groups as Change Agents

Few interventions have involved women's groups (including women members of savings groups/micro credit) to act as change agents to improve maternal and child nutrition.

In rural Nepal, women's groups (facilitated by local women) have been utilized to develop varied strategies including Nutrition Education Communication to tackle problems of maternal and newborn Care. These groups also served as a medium for links between health service providers and the users (pregnant women). The impact evaluation revealed reduction in maternal mortality as well as neonatal mortality rates (Morrison et al 2005).

The Linkages project in Madagascar (LINKAGES, 2002) involved utilization of community-based volunteers-members of Women's Groups (including members of micro credit), to disseminate messages related to breastfeeding - child nutrition through various channels: home visits, sessions at the community health center, national or commune-sponsored health/nutrition events and promotion of Essential

Nutrition Actions (ENA). The women's groups were successful in bringing a positive behaviour change among mothers regarding infant feeding practices and were looked upon as a neighbourhood source of health and nutrition information by the community.

The major factors contributing to impact of various community groups including women's group's discussed above, were regularity of contact with the mother through home visits or community based sessions, effective training and monitoring support, selection of local, socially aware women as Change Agents and support from the Government health nutrition functionaries.

As regards India, women's groups including women members of savings groups/micro credit groups have been successfully mobilized to implement varied strategies for women's economic and social development and for improving women's reproductive health (Stephens 2000) but little is known about their effectiveness as change agents to improve household level Care practices, in particular, breast feeding (BF) and complementary feeding (CF) and hygiene.

Justification of the Present Study

- Despite the continued high prevalence of under nutrition in children under 3 years (especially 6-24 months) close to 50%, little progress has been made on reducing Protein Energy Malnutrition (PEM) in poor communities.
- Very little research has been done thus far in our region to understand the perception of Care as viewed by the community child Care givers.
- We need to examine the mechanisms through which resources for Care influence Care practices and children's nutritional status and development.
- Among the resources for Care, field based research data are needed for this region which assess the influence of beliefs-practices of the grandmother on various aspects of child Care by the mother.
- In particular, research is needed on improving child feeding and hygiene with a focus on Care practices.

- Gender differences are not adequately studied: how does Caregiving differ for boys and girls.
- Women's groups especially women's savings groups, though involved in socio-economic empowerment of women, have not been mobilized as change agents to bring about behavioural improvements in household level child Care practices (breastfeeding, complementary feeding and hygiene).

In view of the above, this intervention study was undertaken in rural Vadodara with the following broad objectives:

- To study Infant and Young Child Feeding (IYCF) and Care practices and resources available for Care, in relation to breastfeeding and complementary feeding practices in children below two years, in rural Vadodara.
- To improve IYCF and Care practices of community women through capacity building of local community groups i.e. *Bachat Mandals* or savings groups which are run by a local Non Governmental Organization (NGO).