CHAPTER VI

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Child malnutrition is a widespread public health problem, world wide malnutrition is an important problem because good nutrition is an essential determinant for well-being and its associated consequences. Preschool children constitute the most vulnerable segment of any community; their nutritional status is a sensitive indicator of community health and nutrition. Kerala’s health care system is moving through a very turbulent period. In spite of the Kerala having the best indicators on child development, certain disturbing trends have emerged in recent years affecting this developmental status, especially in the child population. This estimate indicates that large disparities in district wise analysis of child nutritional status in Kerala. Though Kerala is in the forefront of all health and nutritional indictors compared to other states in India, North Kerala has been one of the most backward areas in the state of Kerala and out of the 14 districts; the rank of Kasaragod has been one of the lowest and far below the state average in terms of socio-economic and health-nutrition indicators. Health and nutritional indicators are poor compared to state average and health infrastructure inequality is very much pronounced in the district compared to other districts in Kerala. Kasaragod is the only district where the two taluks have the lowest health infrastructure facilities.

Various research studies have given an important insight into the fact influencing child nutritional status of preschool children. The review has clearly shown that such factors as household economic status, education of mother, employment status of mother, employment status of father, source of water and availability of toilet facility, child morbidity, age of child, birth order, birth interval of child, maternal nutritional status, and availability of medical facility have a significant influence on child nutritional status. However, little attention seems to have been the importance of environmental and hygienic practices among the household members by the majority of the earlier studies. However, the above mentioned studies did not give any clue how different household deprivation factors influence the child nutritional status of preschool children. In the present enquiry ‘Nutritional status of preschool children: A socio-economic study of rural areas of Kasaragod district in Kerala’, an attempt has been made specifically to address the linkages between household
deprivation status and nutritional status among preschool children. Based on the above dimensions, the main objectives laid down for the present study are:

1. to analyze and evaluate the trends and patterns of malnourishment among preschool children in Kerala.
2. to analyze the interrelationship between household deprivation and family profile of the households of preschool children in the study area.
3. to examine the linkage of socio-economic status and extend of malnourishment among preschool children in rural areas of Kasaragod district in Kerala.
4. to suggest the cross-cutting strategies for combating malnutrition among preschool children in rural Kerala.

Important hypothesis of the study are

1. Environmental, maternal and individual factors are influencing nutritional status of preschool children in rural areas of Kasaragod district.
2. There is a strong correlation between household deprivation status and nutritional status of the preschool children in study area.

There are mainly two approaches to measure the incidence of malnutrition among vulnerable groups of the society which include Calorie intake approach and Anthropometric approach. The present study focus on anthropometric approach, it is considered as more reliable measurement over calorie intake approach. The anthropometric approach is preferred to calorie-intake approach because it reflects the past nutritional status in terms of stunting, wasting and underweight. It was used almost exclusively to estimate undernutrition among children under the age of six.

The causes of nutritional deprivation are interrelated and entail biological, social, cultural and economic factors, and their influences operate at various levels such as child, family, household and community. In this model were divided variables into three groups: socio-economic variables (place of residence, religion, community, mother’s education status, maternal employment status, household deprivation status etc), intermediate factors included environment variables (type of house, house structure, type of latrine, sources of water etc), maternal variables (mother’s age at birth, mother’s nutritional status, mother’s knowledge on nutrition) and proximal factors which included weight at birth, birth order, weight-for-age, height-for-age and weight-for-height.
In this context, the present study constructed a household deprivation score (HDS) based on the socio-economic status of household. The index of deprivation is based on simple measurement of deprivation of the households in three dimensions of deprivation- basic economic assets, basic amenities and basic communications with the outside world. The household deprivation score (HDS) is based on six variables at the household level. This deprivation index is not a direct measure of the 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 in the above three dimensions. This simple measure of deprivation at the household level showed health and nutrition conditions and income levels were highly correlated.

Cross-sectional descriptive survey using a well-structured questionnaire and measurements of weight and height to determine the nutritional status of children aged below 6 years (preschool age group) and to examine the impact of socio-economic, environmental, demographic and household deprivation on nutritional status of Preschool children in rural areas of Kasaragod district in Kerala. Some areas in the district are well developed and the others are in poor condition and thus the present study was confined in rural areas of Kasaragod district. It comprises of two taluks of Kasaragod and Hosdurg. Almost all child development indicators were poor in hosdurg taluk and majority of the rural people lived in this taluk. In Hosdurg taluk, five PHC and two CHC were randomly selected from the list of PHC/CHC centres of Kasaragod district. Socio-economic, environmental and demographic particulars were collected from households of 400 preschool children covered in each selected PHC/CHC.

**Major findings of the study**

Certain disturbing trends have emerged in Child development in recent years, The health indicators of Kerala are higher, compared to other states in India; the NFHS-3 reveals that the situation of child health and nutrition status is alarming picture and also much needs to be done to improve the health of women and children especially among dalits, marginalized and deprived sections of the community. By considering the sound human development base that existed in Kerala for the last few decades the present nutritional picture is not attractive compared to the rest of the country except for a slight decrease in the severely malnourished children. Inequalities in child
nutritional status have worsened in the 1990s, between income groups, urban and rural dwellers, castes and along gender variations. The recent health statistics of Kerala reveals a gloomy picture of degenerating public health system especially the percentage of fully vaccinated children in the age group 12-23 months in Kerala came down from 80 percent in 1998-99 to 75 percent in 2005-06.

The distribution of body weights of preschool children according to Gomez classification, Children with moderate and severe grade undernutrition are considered as ‘at risk’ group from public health point of view. The proportion of ‘at risk’ male children was 26.2 percent and 1.6 percent. In the case of female children, the proportion of ‘at risk’ was 27.7 percent and 2.2 percent. Slight differentials were observed in the nutritional status of preschool children in Kerala. The distribution of body weights of preschool children on the basis of age-wise, the proportion of ‘at risk’ 1-3 age group children were 27.5 percent and 1.9 percent. In the case of 3-5 age group children, the proportion of ‘at risk’ was 26.2 percent and 1.8 percent.

According to IAP Classification, Children with grade III and grade IV undernutrition are considered as ‘at risk’ group. The proportion of ‘at risk’ 6-12 months age group children was 1.7 percent and in the case of 12-24 months age group children, the proportion of ‘at risk’ was 1.6 percent. In the age group 24-36 months, the proportion of ‘at risk’ was 1.1 percent and 1.1 percent with grade III and grade IV of nutrition grades respectively.

In the case of boys, the proportion of children with underweight (< median -2 SD) was about 33.5 percent, while that of severe underweight (< median -3 SD) was 6.8 percent and also female children with moderate underweight was about 31.5 percent and severe underweight was 8.7 percent. The proportion of severe grade of underweight was observed to be marginally higher among the girls. In the case of boys, the extent of stunting (<median -2 SD) among preschool children was 18.8 percent, while that of severely stunted (<median -3 SD) was 25.1 percent and also female children with moderate stunting was about 21.7 percent and severe underweight was 21.2 percent. Education about nutrition, household food security, health services and proper childcare is essential for the general population to improve the state of children’s nutrition today.
Components Household deprivation status

Household deprivation status has strongly influenced the nutritional status among preschool children. The index of deprivation is based on simple measurement of deprivation of the households in three dimensions of deprivation: basic economic assets, basic amenities and basic communications with the outside world. This deprivation index is not a direct measure of the 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 in the above three dimensions. In the district 62.5 percent of households have semi-pucca/kutcha houses. HDS-I group has 9 percent of kutcha/semi-pucca houses and HDS-II group has 40 percent of kutcha/semi-pucca houses. Landholding status of household is another indicator of household deprivation score. HDS score categorized in to- having some land and no land. While 89.8 percent of the households have some land, the remaining 10.2 percent of households have no land. Those who do not have land in HDS-I is 3.8 percent, in HDS-II it is 6.5 percent and nobody in HDS-III group. Around 93.5 percent of the households have electricity facilities available in the household.

Rural areas of the district has about 64.5 percent of households getting own arrangement of drinking water facilities within the residence. Based on the HDS score, 7.8 percent, 22.5 percent and 5.2 percent have no arrangement with in the household in HDS-I, HDS-II and HDS-III respectively. It indicates that better drinking water facilities are available within the household. In the case of adult literacy, about 97 percent of the adult males in the households surveyed were literate. Among the literates, about 9 percent came from HDS-I, 44.5 percent in HDS-II and 43.5 percent in HDS-III group. Access to media like radio, TV or newspapers is another indicator of measuring the household deprivation status. The survey found that while 11.2 percent of household do not have radio/TV/newspapers, 88.5 percent of families have at least one of these.

Household Deprivation status and Child nutritional status

The study clearly revealed that interrelationship between household deprivation score and child nutritional statuses are expressed in terms of weight-for-age (WAZ), height-for-age (HAZ) and weight-for-height (WHZ). HDI-I, HDI-II and HDI-III includes 11 percent, 45.2 percent and 43.8 percent of preschool children respectively. On the basis of weight-for-age classification, 52.27 percent, 46.93 percent and 21.14
percent of preschool children were moderately underweight in HDS-I, HDS-II and HDS-III groups and severe underweight was more seen in HDS-I group. Height-for-age (HAZ) classification, 65.90 percent, 54.14 percent and 38.29 percent of preschool children were moderately stunted in HDS-I, HDS-II and HDS-III groups. But severe stunted was more seen in HDS-II group. According to weight-for-height (WHZ) classification, 45.45 percent, 33.15 percent and 13.71 percent of preschool children were moderately wasted in HDS-I, HDS-II and HDS-III groups. These results confirm that malnutrition is both a cause and consequence of economic status which is the key determinant of the nutritional status of preschool children. This study also found that household deprivation score is a stronger determinant of nutritional status of preschool children in rural areas of Kasaragod district.

**Religion and Community**

The study found that 69 percent of households are from Hindu religion, 21.2 percent Muslims and remaining from Christians. According to weight-for-age classification, moderate undernutrition was 36.2 percent and their corresponding religion wise categorization were 22.5 percent, 11.2 percent and 2.5 percent respectively among the Hindu, Muslims and Christians families and severe undernutrition was more seen in Hindu families. In the same way, according to height-for-age classification, moderate stunting 48.5 percent and it was more seen in Hindu families. On the basis of weight-for-height, moderate wasting was higher in Hindu families. Hindu and Muslim children are equally likely to be undernourished, but Christian children are considerably better nourished.

Generally community divided in to three categories; - SC/ST, OBC and others. While 59.2 percent of households belong to backward communities (OBC), 17 percent belongs to Scheduled castes and Scheduled tribes. Among the 17 percent of SC/ST children occurs at 10.2 percent and 2.5 percent were moderate and severe undernutrition respectively in rural areas of Kasaragod district. While 59.2 percent of OBC children were moderate undernutrition was reported at 22 percent and severe undernutrition was only 3 percent. In the case of moderate stunting, it was more seen in other backward communities (28.2%) and SC/ST (12.5%) children. On the other hand, wasting was also higher among OBC (13.5%) and SC/ST (10%) children. Children belonging to scheduled castes, scheduled tribes or other backward classes
have relatively high levels of undernutrition according to all three measures of nutritional status.

**Age of child**

Extent of malnutrition varies with the age of the child and the prevalence of underweight children varied by age. The present study reveals that the case of moderate underweight was 36.2 percent. The age-wise classification was higher in 37-48 months age category (10.5%) and 49-60 months age category (10.2%). The severe undernutrition were reported in study area was only 6 percent. The higher incidence of malnutrition among children of 3 to 4 years of age is mainly due to poor infant feeding practices. According to the height-for-age classification, Moderate and severe stunting of preschool children in sample population is 48.5 percent and 7.8 percent respectively. While 15 percent of preschool children in the age group between 37-48 months, 11 percent of the age group between 49-60 months were facing low height-for-age index identifies chronic malnutrition and it cannot measure short-term changes in malnutrition. Weight-for-height is another anthropometric measure of child nutritional status. Moderate Wasting was highest (7.5%) reported in the age group between 37-48 months and followed 6.8 percent was reported in the age group between 49-60 months. Severe wasting among preschool children was reported in study area only 3.8 percent.

**Sex of the children**

It is interesting that while a child’s gender has no influence on weight-for-age, height-for-age and weight-for-height in the study area. The survey findings indicate that only marginal differences in proportion in undernutrition are observed by sex of child in the case of underweight, stunting and wasting. Data obtained from sample girls (21.3%) show a slightly (moderately and severe) higher tendency of getting undernourishment than boys (21%). On the other hand, stunting of preschool children in study area was male child (28.2%) was almost same as against female children (28%). A higher proportion of female children had normal weight-for-age and weight-for-height ratios than their male counterparts.
Birth order

The proportion of children with normal height-for-age was comparatively higher among the first born children and the extent of stunting (< - 2SD and < -3 SD) was higher among children with birth order above three or four. A greater proportion of first born children exhibited a better weight-for-height ratio than the ones born later. The association between stunting, wasting and birth order was found to be significant at 0.05 level. These findings reveals that a birth order of three or more show a birth interval of less than 24 months which is unhealthy for the mother.

Maternal Education

Mother’s education could bring about a noteworthy reduction in the incidence of underweight in preschool children in the study area. While the proportion of moderate underweight (< -2 to > -3 Z-score) stands at 3 percent for children whose mothers have no formal education, children whose mothers have at least primary education it is at 18.5 percent. Mother’s education has a milder influence on wasting than on stunting in preschool children. 14 percent of children of mothers with at most primary education are moderately wasted. This signifies the importance and necessity of female education in improving the child nutritional status of the children and hence the future generation. Linkages between the education of father and nutritional status of preschool children are not statistically significant.

Maternal Employment status

The present study reveals that 66.2 percent of mothers were spending on work at home including meal preparation and child care and 26.8 percent of mothers were engaged in agricultural and allied activities and only 7 percent of mothers are included in employment class. The prevalence of moderate underweight was highest (21.2%) in housewife mothers and 13 percent was reported in those mothers are engaged in agricultural and allied activities. On the other hand, the prevalence of stunting and wasting was highest in house wife mothers. At the certain extent, housewife mother is found to be helpful in improving the child’s nutritional health.

Mother’s Nutritional status

The nutritional status of the preschool children has a significant association with that of their mothers. The prevalence of moderate underweight was high (21%) in
medium nutritional awareness score of mother and prevalence of stunting was reported highest in medium NAS of mother. But in the case of the prevalence of wasting was highest in low nutritional awareness score of mother.

**Bivariate and Multivariate analysis**

Chi-square test for bivariate analysis reveals that religion, caste, education status of mother, work status of mother, mother’s mean age at marriage, household deprivation status, age of child, nutrition awareness of mother and birth order are the statistically significant in the case of underweight among preschool children in rural areas of Kasaragod district in Kerala. Sex of child is statistically insignificant in this case. It also reveals that religion, caste, education status of mother, work status of mother, mother’s mean age at marriage, household deprivation status, nutrition awareness of mother and birth order are the statistically significant in the case of stunting and wasting among preschool children. Sex and age of child are statistically insignificant in this case.

The results of the logistic regression analysis underweight among preschool children was associated with religion, community, education status of mother, mean age at marriage, age of child and nutritional awareness score of mother and these factors are statistically significant. The overall significance of the logistic regression model has been provided by the likelihood ratio test, which is highly significant. \( \chi^2_{25} = 89.5647 \) (p-value = 0.0000). It reveals that religion, community, nutritional awareness score of mother are the significant predictors of the stunting among preschool children. The overall significance of the logistic regression model has been provided by the likelihood ratio test, which is highly significant. \( \chi^2_{25} = 75.0015 \) (p-value = 0.0000). Community, nutritional awareness score of mother are the significant predictors of wasting among preschool children in rural areas of Kasaragod district in Kerala. The overall significance of the logistic regression model has been provided by the likelihood ratio test, which is highly significant. \( \chi^2_{25} = 83.5209 \) (p-value = 0.0000).

As is apparent from the data presented above, At a certain uncontrollable factors as household deprivation status, religion, community, age, sex, birth order further make it favourable for the onset of malnutrition. But socio-economic factors, mother’s nutritional status, mother’s educational status and knowledge on nutrition, contribute
to a child’s malnutrition status to a large extent, these factors are definitely controllable.

**Hygienic Practices of families**

Of the families of preschool children, 36.75 percent is addicted to alcohol and 24 percent to cigarette or beedi habits. Tobacco chewing and cigarette or beedi smoking were rampant in families of scheduled and scheduled tribe’s. Continuous uses of drugs or alcohol were witnessed among 38.25 percent of families of preschool children. Only negligible percentage of families was found to use drugs or alcohol on an occasional basis.

It is obvious that 53 percent of families undertake cleaning their house and its surroundings on an alternate day basis. While 17.25 percent undertake irregular cleaning, 1.75 percent families are least bothered about these activities. According to the survey, 30.75 percent families undertake cleaning of their house on a daily basis, 56 percent on weekly and 13.25 percent only on occasional basis.

While studying the methods of waste disposal of these families, it was found that majority of 55.25 percent dump it in one place and 41.25 percent followed the most inappropriate method of ‘throwing the waste carelessly’. The safe method of waste disposal such as ‘burying’ was adopted only by 3.50 percent of preschool children families. Drainage facilities were also found to be lacking in 91.5 percent of families. Pet animals or birds are often the carriers of various diseases. Allowing them to stay inside house will affect household hygienic condition which will have its toll on the small children in the family. While 78.25 percent families are not bothered about this, only 5 percent families allow the pets animals inside and 16.75 percent did not allow them to stay inside house.

Drinking water is most essential since 80 percent of all diseases are directly related to poor drinking water and unhygienic conditions. Private well was the main source of water for 67 percent of families of preschool children. At the same time, 16.5 percent of families used neighboured well, 12.5 percent families public tap and 2.8 percent accessed public well. Regarding the safety aspects of drinking water, 74.25 percent of families of preschool children took precautions by storing drinking water in covered containers. Water is boiled before drinking by 58.5 percent families and 38.25 percent families covered thoroughly their well.
Washing vegetables before cutting was undertaken by 72.25 percent families and 59.5 percent washed their hands before handling foods. On the other hand, food is stored in covered containers by 67.75 percent and food items are cleaned before storage 59.25 percent of families. Personnel hygiene primarily affects the health of all individuals. Daily bathing were undertaken by 13.25 percent, 45.75 percent on weekly and 17.2 percent on alternate days in the case of preschool children.

Health care Management

Health of the families of preschool children in rural areas of Kasaragod district was assessed by collecting the details pertaining to the availability of doctors, accessibility to primary health centres, mother’s attendance in the camps, classes regarding health and hygiene, health and nutrition awareness and practices of mothers. 100 percent accessibility to primary health centres (PHC) was reported in study area, whereas availability of doctors in these centres was only 82.25 percent. Both medical camp and health awareness classes on health and nutrition were conducted in these areas, medical camp attendance was found to be very low at 27.25 percent compared to class attendance at 46.55 percent.

While 65.2 percent women were married between 18 to 25 years, only 21.8 percent women married below 18 years. At the time of pregnancy, the pregnant women need good attention. In the study area, 89.5 percent of mother’s get better antenatal care and at the time of delivery 12.8 percent of women face some health complications and this lead to the caesarian. At the time of delivery 20.8 percent of children were facing low birth weight (LBW) problems. As per the study, 96 percent deliveries were reported in hospital and only 4 percent at home. Normal deliveries were reported at 75.3 percent.

Health and nutritional awareness of mother is an important for child care and child nutrition. Iodized salt is used by 55.6 percent of mothers in their food pattern. Child care at home is crucial factor for their development. While 80.5 percent of mothers undertake this responsibility themselves, 17 percent of mother-in-laws and only 2.2 percent others look after kids in the absence of mother. Nutrition awareness score (NAS) is constructed on the basis of health and nutritional awareness of mothers. As per the study, 25.5 percent among them are low NAS, 71.2 percent as medium NAS and 3.2 percent as high NAS.
In study area, 8.8 percent families have a distance of less than 1 km to their primary health centre. For 33.8 percent it is 1-2 km, 34.2 percent it is 2-4 km and for 23.2 percent it is greater than 4 km. While 83 percent of the families of preschool children received ICDS benefits and 84.2 percent of preschool children received various services from Anganwadi centres (AWC).

An improvement in the nutritional status of children can be achieved by creating awareness on the significance of maternal nutritional status, female child care, significance of growth in early childhood through the existing ‘nutrition education component’ of the Integrated Child Development scheme (ICDS) and stressing on infant feeding practices, hygiene of the environment, birth spacing, which are already in the package but are neglected. The findings of this study stress on the empowerment of women with education, economic independence and decision making in child rearing followed by education on nutrition and health care, thereby achieving an improvement in the nutritional status of preschool children in rural Kerala.

Policy Implications: Strategies to combat Malnutrition among preschool children

A recent verdict of the Supreme Court also directs that the Nutritional requirements (calorie wise, protein wise and micronutrient wise) of children and pregnant mothers should be observed in all the feeding programmes carried out by Government and Public sector undertakings. The broad strategies that will be adopted to reduce malnutrition of preschool children in rural Kerala are as follows: Adopting life- cycle and rights based approaches to nutrition.

a) Family based approach:

Malnutrition occurs largely due to inappropriate family practices related to diet, health care and hygiene/sanitation. The primary focus would be to strengthen family practices related to Infant and young child feeding (exclusive breastfeeding, appropriate complementary feeding), sick childcare with appropriate medical treatment and nutrition management, prevention of illnesses through immunization and hygiene/sanitation, appropriate cooking and dietary practices in the family, appropriate use of nutritional supplements and micronutrient supplements and diarrhoea management through ORT to be promoted within the family. This will be done through specially selected and trained family nutrition volunteers who will visit these families regularly and provide continuing support. The family counsellor will be selected from among experienced persons in the field with in the community. They
will be trained in nutrition topics and counselling skills. The nutrition volunteer will identify all families with children 0-6 years, with antenatal mothers. The family counsellor will repeatedly visit these families and provide counselling and care for specific nutrition and health problems and issues faced and she will encourage and motivate the families for adopting and strengthening appropriate family practices.

b) Local Community based approach

In order to support the family based counselling and behavior, change communication, local community based approach will be taken up at the neighbourhood and community level to enable a positive environment to promote the appropriate family practices as acceptable social norms. All existing peer groups will be identified, such as mothers’ groups, neighbourhood Groups (NHGs), small help Groups (SHGs), adolescent groups, youth groups, religious leaders and other community influencers. Peer group education activities will be conducted for these groups periodically on a continuing basis so that peer pressure is built up for sustaining appropriate family and community practices.

c) Social Marketing and Mass media based approach

In order to support the family counselling and the local community based activities, mass media will be utilized to promote the same message and practices to provide an overall positive environment for behavioural change. Certain specific food supplements such as food mixes and multiple micronutrient premixes, and fortified food items such as iodized salt are essential for ensuring the nutrition security of individuals, families and the community. Their use and consumption needs to be promoted actively.

d) Strengthening Food intervention approach

Government has been implementing a wide range of nutrition intervention programmes for achieving food and nutritional security at the household and individual levels. The important food-based interventions include Public distribution system (PDS), integrated child development services (ICDS) and Mid-day meal programmes (MDM). The performance of food-based interventions needs to be improved by making them more demand driven. Merely scaling up the coverage of the programmes without improving their quality may not be the best way to reduce malnutrition. It is essential to reform the PDS and simultaneously release some resources needed by the ICDS and MDM. In essence, all the current food-based interventions play a complementary role in justifying malnutrition over the life cycle.
of an individual. Food supplements free of cost will be provided by the ICDS programme to eligible families (including BPL, SC/ST and other deprived groups) to reach the target age groups.

e) Institutional approach

Nutrition issues will be addressed by the health department and also the social welfare department providing nutrition supplementation to cover up inadequacy in nutrition in the food supplied in welfare institutions like after-care homes, children’s homes. The NRHM emphasizes the need to provide universal access to equitable and affordable health care that is accountable and responsive to the poor and marginalized people in the rural areas, especially children and women. National Nutrition Mission has been set up in 2003, with the basic objective of addressing the problem of malnutrition in a holistic manner.

As the study of the reveals the poor nutritional status of preschool children, there is thus the need for more concerted efforts towards improvement of their nutrition so that the backbone of the nation is not compromised with. Problem of undernutrition amongst preschool children needs to be addressed through comprehensive, preventive, promotive and curative measures. The community needs to be educated about environmental sanitation and personnel hygiene and also proper child rearing, breast feeding and weaning practices, especially in the context of changing life style of the rural people in Kerala. Campaigning against alcoholism and substance abuse smoking, which can alter the lifestyle of rural people drastically, affecting their health adversely and also reduce their purchasing power and economic security. A comprehensive child survival programme with supplementary feeding, growth and development monitoring and early detection and prompt treatment during illness needs to be devised and implemented ensuring community participation. The government needs to spend more money on quality nutritional programs in order to improve the state of malnutrition and therefore health services, education for females and poverty.