It was revealed from several studies that the very few attempts have been made to study the dietary practices among the urban slum and rural population in Maharashtra in general and Vidarbha in particular. For this reason the study "Effect of Dietary Habits on Nutritional Status of urban slum and rural population in Amravati district of Vidarbha region" was selected.

A random sample of five families from each village and a random sample of five families from each urban slum area was selected. Thus survey was conducted on fifty villages i.e. on 250 families and on fifty urban slums i.e. on 250 families. The purpose of selecting samples from rural and urban slum population was to compare these two groups.

The proforma of diet survey and nutritional assessment was fixed and was pretested on forty urban slum and forty rural families. The proforma was filled by the investigator by interview method. General information regarding type of family, size of family, education, income, child mortality, hygiene, sanitary facilities, domestic animals
and their use was collected. In diet pattern, food habits, cooking practices, monthly expenditure on food and diet intake was recorded. Raw food consumed by urban slum and rural population for three days was weighted not noted personally. Anthropometric measurement i.e. age, height, weight, arm circumference of all age groups and chest circumference, head circumference upto five years of age were taken whose dietary history was known. The weight of preschool children of urban slum and rural population were expressed as percentage of weights and grouped into different nutritional grades (Gomez classification). A careful clinical examination was conducted with special reference to nutritional deficiency sign by the investigator. A supplementary feeding experiment was conducted to study its effect on nutritional status of surveyed urban slum preschool children (2 to 5 years).

1. General Information:

The percentage of nuclear family was higher in rural families and the percentage of joint family was higher in urban slum families. The percentage of male was slightly higher in rural families and percentage of females was slightly higher in urban slum families. The highest size of
the family was 15 members which belonged to rural population and the lowest size of family was 2 members which belonged to urban slum and rural population. Families of urban slum and rural population were made up of husband, wife, unmarried sons and daughters and married sons and daughters-in-law and other relatives.

The percentage of literate was slightly higher in urban slum population and the percentage of illiterates was slightly higher in rural population. 77 per cent of urban slum population were non-agricultural labourer and 90 per cent of rural population were agricultural labourer. Only 11 per cent rural population had their own land, but not a single family of urban slum population had a piece of land. The main crop of rural population was wheat.

Majority of urban slum and rural population belongs to the income group of Rs. 501 to 1000 per month. Urban slum and rural population mainly earn money through labour.

Keeping domestic animals contribute towards the economic status of urban slum and rural population.
They keep hen, cook, goat, buffaloes, male goats, cows, bullocks etc. Bullocks were used for cultivation. Generally cows and buffaloes were not milched. The rural families had more percentage of domestic animals than the urban slum families.

In Amravati district no proper sanitary facilities were available. Only 1% of urban slum population and 2% of rural population had their well. Mostly electricity was available in urban slum and rural areas, where the present survey was conducted. Their houses were poorly ventilated. Surroundings were not kept clean in 99% of urban slum families and 98% of rural families.

The child mortality of urban slum population was 11.6% and that of rural population was 10.5%. Death of children were due to underweight was the result of poor maternal nutrition, low economic status, practice of prolonged breast feeding without supplementary food during the weaning period of children. The next cause of death was diarrhoea and infectious diseases. This could be related to unhygenic condition, lack of medical facilities such as
preventive inoculation timely medication to check the diseases. Thus untreated infection in the urban slum and rural population is harmful to health and making them victim of nutritional disorders.

2. Diet Survey:

It was observed that the urban slum and rural population take three meals a day, at 7 a.m. they take tea and poli (chappatties of wheat flour) or left over of yesterday. Afternoon meal consist of bhat (cooked rice), varan (cooked dhal), bhaji (cooked vegetable) poli (chappati of wheat flour) and at night they take bhaji (cooked vegetable) and poli (chappati of wheat flour) or some times they prepare bhakari (chappatties of jowar flour) also.

56% of urban slum population and 51% of rural population were vegetarian. All the traditional methods were followed by the most of the families of urban slum and rural population. Cooking of leafy vegetables at high temperature without lid, with much water was very common. No specific food was recommended in different physiological conditions. Breast feeding is recommended for children at least upto 3
years of age. No supplementary food was given during weaning period. The population of urban slum and rural area of Amravati district had many food fallacies. Pappaya was not consumed in pregnancy. During the lactation period brinjal, cluster bean, bengal gram were avoided. Sago porridge was recommended during diarrhoea. During injuring groundnut and brinjal were avoided.

Rural population purchase vegetables from weekly market and grocery from ration shop or grocery shop. Urban slum population purchase vegetables from vegetable shop and grocery from grocery shop near by. The urban slum and rural dishes are like jowar bhakari, thecha, kadhi-gole, patodi-wadi, bhaje, puran poli, shrikhand and basundi etc.

The first priority among the urban slum and rural population is expenses goes to food. The urban slum and rural population belonging to different income group spend 60% to 99% of their income on food.

Diet of the urban slum and rural population was based on cereals and other vegetable foods in small quantities. Wheat was the major portion of energy, protein,
niacin, riboflavin, thiamin and iron in the diet of urban slum and rural population. Other cereals were jowar and rice. Jowar consumed in small quantity by rural population and urban slum population. The common pulses consumed by the urban slum and rural population were urid (Phaseolus mungo Roxb.), tur dhal (Cajanus cajan), chana dhal (Cicer arietinum), mung dhal (Phaseolus aureus Roxb).

The intake of vegetables, oils and fats, and sugar and jaggary was found to be more in rural population than urban slum population.

Sugar and jaggary and fats and oil consumed on small quantity by urban slum and rural population due to low economic status. The urban slum and rural population consumed sugar in tea.

The detailed study of nutrient intake reveals that the intake of calories by urban slum families was less than the rural families (50% to 52% and 51% to 84%, respectively). However, it was less than the recommended allowances. The main source of energy was wheat. Approximately 75% of the energy was derived only from wheat.
The daily intake of protein was less than recommended allowance. It was also observed that protein intake of urban slum population was less than rural population, because urban slum population consumed less pulses, milk and millets than rural population. Approximately fifty percent of protein was derived from wheat in urban slum and rural population. Proteins consumed by urban slum and rural population were mainly vegetable protein.

The daily intake of calcium by the urban slum and rural population was less than the recommended allowances. The low intake of calcium by urban slum and rural population is related to consumption in small quantity of milk and green leafy vegetables due to low economic status. The daily intake of calcium by rural population was more than urban slum population because the intake of milk and green leafy vegetable by urban slum population was low than rural population.

The daily intake of iron of urban slum and rural population was low than recommended allowances. It
was found that the iron was obtained from cereals, pulses and green leafy vegetables. Approximately 50% of iron was obtained from wheat.

The intake of vitamin 'A' was less than the recommended allowances in urban slum population as well as in rural population. The intake of vitamin 'A' was more in rural population than in urban slum population. It was found that the vitamin 'A' was obtained from leafy vegetables and milk.

The intake of vitamin 'C' by rural population was more than urban slum population. Fruits and vegetables were the source of vitamin 'C'. The intake of vitamin 'C' by urban slum population and rural population was less than recommended allowances.

The intake of thiamin by an adult man was more than adult woman because the consumption of other cereals, pulses was more in an adult man than a adult woman. The intake of thiamin by an adult man and woman was less than recommended allowances. The intake of riboflavin was less than the recommended allowances in rural population as well.
as in urban slum population. Fruits and vegetable were the sources of riboflavin.

The intake of niacin was low than the recommended allowances in rural adults as well as in urban slum adults. The intake of niacin by urban slum adults was low than the rural adults. Only wheat was the main source of niacin.

The present study concluded that the staples were the main source of calories, protein, iron, niacin, thiamin and riboflavin, so it is but natural that requirement of nutrients like ascorbic acid, vitamin 'A', calcium and riboflavin are not met to the level of recommended allowances. It is also concluded that intake of calories, protein, vitamin 'A', calcium, riboflavin, iron and vitamin 'C' was less than recommended allowances. The dietary intake of different nutrient was less in urban slum population than rural population.

3. Anthropometric Measurement:

As to know the physical state of body and nutritional status, anthropometric measurements of urban slum
population and rural population were taken in relation to height, weight, arm circumference, head circumference and chest circumference.

As to compare the urban slum population and rural population the standard deviations of their anthropometric measurements were found out at all age groups. The 't' test was applied (1) between anthropometric measurement and standards of Indian Council of Medical Research (2) between anthropometric measurements and regional values of National Nutrition Monitoring Bureau.

It was found that height values were statistically significant at the age of 2 years and 10 years in rural male and female with Indian Council of Medical Research values, which were less than the standard values.

When the mean values of heights of rural children were compared with the regional values reported by National Nutritional Monitoring Bureau of India. Values of height of rural children were less than the regional values.
In case of urban slum population the mean values of height were less than the standards of Indian Council of Medical Research and regional values of National Nutrition Monitoring Bureau.

The mean values of weight were found statistically significant at the age of 14 years of rural female ... with Indian Council of Medical Research values, which were less than the standard values. Statistical significant difference also found between the weight of rural male at the age of 11 years and standards of Indian Council of Medical Research at 5 % level.

When the mean values of weight of rural children at all ages compared with the regional values reported by National Nutrition Monitoring Bureau of India. It was found all values were less than the regional standard.

In case of urban slum population the mean values of weight were less than standards of Indian Council of Medical Research and standards of National Nutrition Monitoring Bureau.
The weights of preschool children of urban slum population and rural population were classified according to Gomez classification. The proportion of children suffering from severe malnutrition in urban slum girls and boys was 4.46% and 4.45% and that of rural girls and boys was 7.79% and 2.33% respectively. About 16.96% and 16.88% of urban slum and rural girls and 18.75% and 16.28% of boys of urban slum area and rural area respectively had normal body weights. About 82% to 84% of the urban slum and rural children belonged to mild moderate and severe degree of malnutrition. This could be related to low intake of energy, protein, calcium.

The values of arm circumference of urban slum female at the age of 8 years was statistically significant with standards of Indian Council of Medical Research at 5% level. The arm circumference of rural male at the age of 15 years was statistically significant with standards of Indian Council of Medical Research at 5% level.

The values of chest circumference of preschool children of urban slum and rural population were less than standards of Indian Council of Medical Research. The
chest circumference of urban slum female child at the age of 5 years was statistically significant with standards of Indian Council of Medical Research.

The values head circumference of urban slum and rural preschool children were less than standards of Indian Council of Medical Research. The head circumference of rural male child at the age of 5 years was statistically significant with standards of Indian Council of Medical Research.

4. CLINICAL ASSESSMENT OF NUTRITIONAL STATUS:

Clinical examination has always been, and remains, an important practical method for assessing the nutritional status. The method is based on the recognition of certain physical signs. The deficiency signs observed were Protein Calorie Malnutrition among weaned infant and in preschool children. The percentage of marasmus was more in 1-3 years age than in age group of 4-5 years. The percentage prevalence of more than two signs of Protein Energy Malnutrition was more in 4-5 years age than
in age group of 1-3 years. Prevalence of Protein Calorie Malnutrition was because good amount of protein would be utilised for meeting the energy gap resulting in protein malnutrition.

Ocular manifestation of vitamin A deficiency conjunctival xerosis and bitot's spot in children were seen between 0.83% to 5.88% and 0.32% to 1.32% respectively. Clinical manifestation of vitamin A deficiency were seen more in the adolescents and adults than in the children. Prevalence of conjunctival xerosis was higher in urban male than rural male. Prevalence of vitamin A deficiency was due to intake of green leafy vegetables and milk in small quantity.

Angular stomatitis and cheilosis was observed in urban slum and rural population. It could be due to the faulty food practices.

Other deficiency sign found in children were dermatitis and dental carries. Red and raw tongue, dermatitis and bleeding gum were the other deficiency signs observed in adolescents and in adults.
A few cases of endemic goitre were observed in urban slum and rural females. About 1.33% of urban slum females and 3.86% of rural females were suffering from goitre.

5. SUPPLEMENTARY FEEDING EXPERIMENT:

Majority of preschool children in developing countries including India also consume inadequate diet and suffers from malnutrition. There is an urgent need to institute supplementary feeding programmes in developing countries and such supplements should be based on locally available foods such as legumes, oilseeds and nuts.

In the present study results of diet survey reveals that urban slum population consumed different food stuffs in less quantity than rural population. That is why the supplementary feeding experiment was conducted on preschool children of surveyed urban slum population. The experiment was conducted to find out the effect of supplementary feeding among the preschool children of urban slum population.
For experiment two groups were made (a) control group (b) supplemented group. Anthropometric measurements (i.e. height, weight) were taken and biochemical test was done before start feeding schedule. Feeding formula (wheat pulse laddus and banana) was fed for 90 days to supplemented group. But control group was not fed. After completing feeding schedule again anthropometric measurements (i.e. height, weight) were taken and biochemical test was done. Than initial and final anthropometric measurements were compared with each other and with standard of Indian Council of Medical Research also. The 't' test was applied (a) between initial and final anthropometric measurements of control group (b) between initial and final anthropometric measurements of supplemented group. The initial and final results of biochemical test also compared with each other and with standards of World Health Organization.

Thus results of experiment revealed that feeding formula showed slight effect on preschool children of supplemented group. No statistically significant difference was found between the initial and final height in the supplemented and control group. The initial and final
heights were less than standards of Indian Council of Medical Research.

The feeding formula showed slight effect on body weight of preschool children of supplemented group. Final weights of males in supplemented group at the age of 2 and 3 years were more than the standards of Indian Council of medical Research. At the age of 3 years significant difference was found between initial and final weight of male and female of supplemented group.

Initial and final haemoglobin of control group and supplemented group was less than the standards of World Health Organization.