SUMMARY AND CONCLUSION

Chapter VII
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Food as the sources of nutrition, which provides essential elements for biological makeup of the human body, has also, been well understood as an important parameter for the study of a population's health status and also the micro-evolutionary processes in human population. Approximately 50 nutrients as required for a healthy and active life are derived through the diet he consumes. But the requirement of such nutrient depends upon the age and physiological status of an individual. Probably depending on the nutritional ecological system, food habits of the people have deeply been associated with different customs, habits and certain social and cultural factors. It may again vary from group to group and from region to region. In fact, a group's nutritional status is a result of interplay between the member's food resources and their culturally determined ways of using them. Modern humans, in their world-wide distribution, have survived on an enormous array of diets, from the one based predominantly on meat to a diet of vegetables and grains.

Food primarily fulfills the basic needs of the man, also regulates the biological processes. It promotes growth or built the body and repair the wear and tear and finally, it should protect the body against ill health.

Among the various environmental factors that influence the growth of the child and maintenance of the body system, the important one is nutrition. Some important works have strongly suggested that nutrition alone plays a major role in human growth, rather than the genetic background, thereby accepting that the
processes of growth, ageing, and life expectancy being responsive to nutritional factors.

Growing bodies require the most food to provide the most innate heat, for otherwise, the bodies are wasted. In old people, the heat is feeble and they require little fuel. Studies in this era have encompassed the discovery and identification of certain nutrients viz. the vitamins, amino acids and certain minerals and their specific need in health. Even in this space age, nutrition poses as one of the world’s most pressing problem. The suffering for the affluent nations is overnutrition but for the developing nations, it is undernutrition. However, the problem of under nutrition far exceeds that of overnutrition. More than half of the world’s population is suffering from a certain degree of starvation resulting into undergrowth and underdevelopment. Life expectancy in many Asian countries ranges from 35 years among the Bangladeshis to 57 years among the Pakistanis, while for the Indians, it is about 41 years. Among the Europeans, USA and the Japanese populations, the average life expectancy is 70 years and even more.

In India, many children die before the age of 5 years. Certain tribal groups of Gujarat, Orissa, Andhra Pradesh, Assam and Andaman island etc. were found to have suffered from nutritional deficiencies and that has effected in their normal growth and life expectancy in general. In Manipur, certain tribal populations and even some section of the Meitei populations, specially the children have deficiency in the consumption of vitamins and minerals. Certain discrepancies have been observed in the manifestation of various anthropometric pattern among the certain ethnic groups and populations of Manipur state and even of other states of the country. Many of such studies on the nutritional resources and its impact on the growth of the children and the general health status of the populations of the north-east are yet to be covered. Therefore, studies on the areas of food, dietary habits and the health status of the people are highly desireable.
In view of the facts, the Indian Council of Medical Research (ICMR) has even suggested that substantial additional surveys and studies need to be carried out in different parts of the country as part of health survey.

The present thesis is a treatise of the study of the pattern of the body height and weight in relation to the food intake pattern considering their socio economic background, based on a semi-urban Meitei locality of Manipur, in order to facilitate for an indepth investigation of the study at the micro level. Attempts have been made to study the type of food and food habit of the people. Moreover, the weekly consumption of carbohydrate, fat, protein and caloric values have also been estimated. Another important aspect of the present study is to assess the height and weight of the individuals of each sex and age group and to analyse the variational pattern in the background of their socio-economic classes. Besides, a comparative assessment of the height and weight of the boys and girls of the present population with the data of one Urban Meitei population (Inakhunbi et al.) and with populations represented for 6 states of India and one population represented for the well to do families as reported by the ICMR and further with one USA population reported by NCHS, has also helped in understanding the influence of human food in the manifestation of the rate and pattern of human growth.

The Meiteis constitute the largest population (10 lakh approximately) of the state and they are the original settlers of Manipur valley. They belonged to any of the exogamous clans known as Khuman, Luwang, Mangang, Khaba-Nganba, Angom, and Sarang-Leishangthem (Chenglei). No marriage could contract within the clan. Both nuclear and joint family types are found among the Meities. They are the Hindus and mostly belonged to the Kshetriya caste, while some sections of them belonged to Brahmin caste. Besides Hinduism, they still retain their traditional belief of Sanamahi - a family deity.

Considering the overall literacy rate of the state with about 60%, the Meities are expected to have a higher rate of not less than 65%. Wet cultivation is their primary occupation, while handloom and handicraft may be considered as the
secondary sources of income for them. It is noteworthy that the women of the state are hard working and enterprising.

As a tradition, a Meitei homestead normally have an open out-house, a grannery, a cowshed, a toilet, a pond and an open space for kitchen garden where different vegetables and cereals are grown. Regular sweeping and cleaning of in and out of the house is the normal practice of a Meitei family. Cooking is done after the bath and after changing another clean cloth. They take 2 major meals- one lunch at about 12 noon and another supper at about 8 pm. As an exception, the office goers normally have their lunch at 9 am. Rice is the staple food for the Meiteis and they relish fish. They also have a wide range of choice of vegetables, of which many are wild varieties. Different choice of mushrooms are also available for them. Meat, chicken or even eggs are the forebidden diets for the orthodox Meiteis, although it is no longer strictly true nowadays, specially among the younger generations. No doubt, a very fast changing trend has been evident among the Meiteis in the recent time.

In order to undergo the study and examine the problems, as has been pointed out above, a Meitei village viz. the "Athokpam", has been selected. It is a village in Thoubal district which come under the jurisdiction of Thoubal police station and is situated adjacent to the National Highway No. 39 i.e. the Indo-Burma Road (Myanmar) at a distance of about 23 kms. away towards the south-west of Imphal. The Athokpam village may be said to be one of the most ideal villages of Manipur, as being located, not only just by the side of the National Highway, but also located many important administrative offices such as District Commissioner, Legal and Judiciary office, Police Headquarter, Educational Institutions, Hospital etc. almost at a quite near proximity to the village. Administratively, the eastern half of the village comes within the fold of the Thoubal Municipality Council, which is the Head quarter of the Thoubal District. A diversion pakka road from the National Highway 39 connects the village and that facilitates a good communication system. The village is large enough, covering 2½ km. in length and 1 km. in breadth approximately and is divided into 3 leikais (locality) viz Awang Leikai (ward no. 5), Mayai Leikai (ward no.6) and Makha Leikai (ward no.7).
Necessary information and data for the study have been collected by conducting field work at Athokpam village for one year. A total of 307 families have been selected at random, from which detail data on demographic information, socio-economic aspect, socio-religious ceremonies, food consumption and dietary habit have been collected by using schedule questionnaire proforma. Moreover, anthropometric measurement of body height and weight have also been collected from all the members, irrespective of their age and sex from the said 307 families. For further indepth investigation of weekly food consumption in terms of quantity and quality etc. of the food as consumed by the families, only 65 families have been drawn at random from among the total sample of 307 families.

Scoring for nutrient consumption, weight for each raw food items, which were already processed and ready to be cooked, have been taken by using a spring scale and table balance (Libra). Weightment of the raw food items was conducted for both morning meal and evening meal from each family covering one full dietary cycle. The food data, so collected were subjected to translate into the mean intake (gm.) of food in terms of cereals, pulses, vegetables, fruits, milk, fish and eggs by using food composition tables referred by Gopalan et al., 1994; Sarojnalini et al., 1988; V. et al., 1988; Lilabati et al., 1993a, 1997b, 2000; Iademal G., 1994; Jugindro, 1996, etc. for the local ethnic food stuffs. Conversion of the food values have again been classified into three broad nutrients viz. protein, fat and carbohydrate using the tables for nutrient analysis. The total calorie value has also been calculated. While collecting data for food consumption and calculating for food values, even the ceremonial/other kinds of feast have also been taken into account.

While scoring per capita income of the families, the income values so collected from the families have been converted to the updated rate value following Prosad (1970). Metrical values for height and body weight measurements have been recorded by using anthropometric techniques and equipments as recommended by Weiner and Lourie (1969).
Data, which have been collected from the field have been analyzed and tabulated for most of the parameters as far as practicable. Statistical constants such as mean, standard deviation and co-efficient of variation with their standard errors were calculated from the distribution tables, wherever found necessary. Bi-variate comparisons have been done by applying t-test, while for multivariate comparisons Anova test (Ciplonkar and Rao, 1999) have been followed whenever necessary. In order to examine test of significance in the consumption of carbohydrate, fat and protein among the class groups, Fisher’s (1920) method for Analysis of Variance for one way classification has been followed. Further also, least significance difference (LSD) test or critical difference test of Fischer has been applied for examining detail attributing factor for test of variance between specific classes (Rao et al., 1999).

Inspite of paucity of data for different age levels of each 4 socio-economic groups, a modest attempt has been made to assess the growth rate of stature in relation to body weight, with the help of Ponderal index and Koperfulle index. Other measures of growth assessments such as absolute growth, growth percent per annum and growth gradients have also been applied. These measures should helped in understanding the variational pattern of growth between and among the class groups and or other populations.

Analysis of the 307 families on the basis of their socio-economic background have revealed four standard of social classes such as class II (20.52%) as the most minimum group, class III with (23.13%), class IV (34.20%) as the largest and class V with (22.15%). No family under class I was available from the present sample.

There are not much variation in the sexwise distribution among the sampled families, although a very slight number of female (0.14%) have been observed. They have a family size of 6.39% which was distributed within 48.54% of nuclear families and 51.46% of joint families. Maximum number of individuals, in the population have been recorded in the age groups 6-11 years, 12-17 years and 18-23 years, having an average number of 11.5%. An approximate number of 8% individuals have been observed till the age group of 42-47 years. A few individuals have been recorded from
the age group 84 years and above. In the later age groups, the male individuals are found slightly more in number than the female members.

From the record of 77.82% of the literacy rate observed in the population, it may be rated that the overall literacy rate in the present population is quite high. The highest illiteracy rate has been found among the class V group (27.72%), while the lowest has been observed in class II category (15.67%). On the other hand, for the literacy rate, it has been observed to have highest number in the class II with 84.33% and lowest in class V group with 72.28%. As many as 6.01% of them are graduates.

The occupation of the Meities varies from cultivation which is the highest amongst them (19.37%) to certain odd jobs, say labourers (5.56%). Weaving is another main resource for many families (12.79%). Nearly 10% of them are government employees, among which the highest of them have been observed from class II (14%) and class III (13.18%) families. The families belonging to class IV and class V have been observed to have the highest frequency in cultivation as their occupation with 19.21% and 20.99% respectively and they also have such a higher trend in weaving as well, as, with 13.11% and 15.64% respectively. On the contrary, they have the lowest in Government service, being only 8.34% in class IV and 7.92% in class V. It has also been observed that labourer as occupation are confined to only class IV (8.51%) and V (9.31%) families.

Among the 65 families, which have been selected exclusively for examining aspects of food consumption and food habit etc., it has been observed that a similar trend of distribution of different socio-economic classes such as class II, III, IV and V have been observed as was found in the combined sample of 307 families. Even the distribution pattern of the individuals in respect of age and sex, literacy, occupation and food habits may be classified to have quite a similar pattern as observed in the combined sample.

The day to day food intake pattern, which is the source of different nutrient properties such as carbohydrate, protein, fat and calorie/kcal have been observed to vary from among the members of the same socio-economy class status and also
among different classes. The highest average consumption of carbohydrate is found among class V families with 556.93 gm., while the minimum has been observed among the class II families with 520.11 gm. and in between the two, class III and class IV families consumed it at the rate of 530.30 gm. and 540.50 gm respectively. On the contrary, in case of protein consumption, the highest average has been observed in class II families with 66.03 gm. and it gradually decreases among the class III families (65.74 gm.) and still more steeply among the class IV (60.74 gm.) and V families (50.45 gm.). Such a picture of consuming more rate of protein among the higher classes has also been observed in case of the consumption pattern of fat, being that the highest consumption of it has been observed among the class II families (24.51 gm.), while it gradually decreases to other lower classes. And as such, the lowest average of its consumption have been observed among the class V families with only 13.06 gm. There is no uniform pattern of the consumption of calorie among the different class categories. Class III had the highest consumption of calorie (2579.09 kcal) but the lowest have been observed in class IV category (2544.94 kcal). Class II still had a higher consumption of calorie (2568.72 kcal) and class V would consume it at an average of 2547.09 kcal.

When compared with the ICMR (1981) report, the Meitei population consumed both protein and calorie in much a higher rate. However, in case of the fat consumption, the present Meitei population consumed in far less proportion (18.66 gms.) than that of the ICMR data (40 gm).

While comparing the consumption rate of carbohydrate, protein, fat and calorie among the different four classes following Anova, it has been observed that significant differences have been found only in the consumption of protein (F=4.57, p<0.05) and fat (F=5.27, p<0.05). No such significant variations have been observed in the consumption of carbohydrate and calorie among these social classes. While examining further specific intra class variations in the consumption of protein and fat, it has been observed that class II group show significant variations in both protein (LSD =87.52, diff. Of mean=115.29) and fat (LSD=55.82, diff. of mean=80.15) consumption from that of class V. Similarly, such significant variations have been
shown between class III and class V groups in both protein (LSD=67.79, diff. of mean=113.82) and fat (LSD=43.24, diff. of mean=57.19) consumption. Another significant variation in the consumption of protein has been shown in between class IV and class V (LSD=49.51, diff. of mean=67.62), and also in fat consumption between class II and class IV groups (LSD=53.54, diff. of mean=60.77).

The height and weight for all the individuals of the total sample of 1962 drawn from 307 families have been analyzed in terms of age and sex as per different socio-economic classes. A total of 300 (M=152, F=148) individuals had come under class II, while 402 (M=202, F=200) came under class III, 755 individuals (M=379, F=376) class IV and 505 individuals (M=245, F=260) under class V categories. Special attempts have been made to examine, if there is any influence in nutritional intake pattern in different age and sex levels and also to make inter and intra group comparisons.

The distribution of mean height of the individuals under different class categories have displayed relatively higher mean heights in almost all the age groups of class II category when compared to those of other classes. In other words, it is to say that a decreasing trend of mean values concomitantly with the decreasing class categories have, thus, been observed in most of the age groups. As for instance, the mean height of 0-5 age group male children of class II category has found to have 87.76 cm. and it gradually reduces to 87.66 cm. at class III, 85.83 cm. at class IV and 85.16 cm. at class V categories. Not only at this age level, such a decreasing trend in the mean height of the males from class II to class V through class III and class IV have also been observed in other age groups too. For example, at 6-11 years, the trend of mean height has been noted as II=118.74 cm. > III=117.77 cm. > IV=117.11 cm. > V=116.72 cm. and again at age group 18-23 years, it has been noted as II=167.05 cm. > III=165.99 cm. > IV=164.80 cm. > V=163.81 cm. The same trend has been noted in most of the following age groups, till the age of 72 years plus.

The same phenomena of having higher mean height among the female data of class II category and a decreasing trend of it among those belonging to other
subsequent lower socio-economic categories have been noted. At the age group 0-5 years of female data, the mean height begins with 86.61 cm. at class II category and gradually decreases to 85.95 cm., 84.64 cm. and 84.23 cm. respectively representing for class III, class IV and class V. When the age group 12-17 years is considered, the same trend of showing higher mean values in the higher socio-economic groups and the decreasing trend among the lower socio-economic groups have been evident with the values of 147.16 cm. for class II, 146.18 cm. for class III, 144.51 cm. for class IV and 143.88 cm. for class V groups. At the completion of 65 years, the females of class II category have superior heights than the females of the same age group belonging to the lower socio-economic groups.

In case of the body weight too, by and large, the same trend of having higher mean values among the members of the higher socio-economic groups than those of the lower groups have been observed. Initially, at 0-5 age level, a trend of higher mean weight in class II category (11.73 kg.) and lower values subsequently at lower categories in class III (11.27 kg.), class IV (10.91 kg.) and class V (10.82 kg.) have been observed. The same trend have also been observed at 6-11 years age group beginning with 23.0 kg. at class II category and followed by 22.04 kg. for class III, 20.90 kg. for class IV and 20.40 kg. for class V category. When they attain the age group 18-23 years, the mean weight at class II category has reached to 56.47 kg and it gradually decreases in the subsequent lower categories in the order of 56.17 kg, 55.25 kg and 54.24 kg respectively for class III, class IV and class V categories. The highest mean weight amongst them have been noted with 57.60 kg. for class II at 42-47 years, 56.45 kg. for class III at 36-41 years, 55.61 kg. for class IV at 24-29 years and 54.47 kg. for class V at 30-35 years.

The females begin with 11.45 kg. mean weight at 0-5 age group for the class II category and the lowest have been observed with 10.49 kg. at class V category. At the age of 6-11 years, the order of mean weight has been noted as II=23.54 kg. > III=20.96 kg. < IV=21.76 kg. > V=21.11 kg. Even at the instances of 12-17 years age groups, such a trend of higher mean values among the members of the class II category and the lower mean values in the order of subsequent lower socio-economic
categories have been noted with 41.80 kg. (II), 41.08 kg. (III), 40.17 kg. (IV) and 39.21 kg. (V). Among the females, the highest mean body weights have been noted with 49.69 kg. for class II at 30-35 years, 48.49 kg. for class III at 24-29 years, 47.82 kg for class IV at 48-53 years and 46.71 kg for class V at 48-53 years.

From the array of the distribution of mean height and weight, the class II categories have shown having higher mean values from those belonging to class III, IV and class V categories in both the measurements.

Bivariate comparisons of the distribution of mean height in different age groups in respect of males and females respectively belonging to different socio-economic classes, has revealed that statistically, no significant differences had been observed. This is true in both the sexes. Such bivariate comparisons between the distribution of mean weight among the members of the different socio-economic classes for both the sexes, again, no significant variations have again been noted. This suggests that there is a homogenous distribution of height and weight among the members, although belonging to different socio-economic classes of the population.

From an overview of inter population comparisons in terms of the distribution of mean height and body weight considering the present population with the Urban Meitei population of an early study (Inakunbi et al., 2001) and with six populations of ICMR (1989), besides the children of the well to do families and further also with the USA children of NCHS, a varying observations have been made.

The present Meitei boys sample representing a semi urban population have shown a slightly lower distribution of mean values in both height and body weight with compare to the urban sample. However, the differences are not very marked as the differences could hardly be 1cm. in case of height and within a margin of 1 kg. in case of body weight.

When the height and weight of the boys and girls of the present study have been compared with six populations of India represented by the populations from Andhra Pradesh, Kerala and Maharashtra from the south, Uttar Pradesh from the
north, Punjab from the west and Orissa from the north-east, as given in the ICMR report (1989), it has been observed that the Meitei children are quite comparable with the above populations specially when considered with age groups 1 – 21 years. Still however, the Meitei children show closer mean height distribution with those of the Andhra Pradesh and Kerala. The Meitei children had slightly higher mean values from those of the Maharashtra, Uttar Pradesh and Orissa children. But the Punjab population, as an exception, has been found to have comparatively higher mean values from those of the given populations including the Meitei children at most of the age levels. It may be pointed out that the mean heights of the Meitei children along with the Kerala children begins having the highest mean values at the age of 1 year. At the completion of 21 years, the Meitei and Andhra population show almost an equal mean height of 165.8 cm.

In case of the females, the Meitei children are found to have slightly higher mean heights in many of the age groups of 1-21 years. Although, the Meitei children might show lower mean values from those of other populations till the age of 11 years, they later on, specially at the age of 20 years, along with those of Punjab and Uttar Pradesh populations show almost equal mean values of 153 cm. approximately.

Regarding the overview comparision of the distribution of mean weight among the boys of the above six states and that of the present Meitei boys, it has been observed that the Meitei boys have shown higher body weight from those of the Andhra Pradesh, Kerala and Maharashtra states. In most of the age groups from 1 to 21 years the Meitei boys show heavier weight than the Kerala boys, with the exception that the Kerala boys having heavier weight than the Meitei boys at the age group 1-4 years. But, comparatively the Punjab boys show higher mean weights than the Meitei boys till the age of 11 years, excepting at the age of 1 year. Although, in the beginning, the Meitei boys had a general trend of lower mean weight, they however, start gaining higher body weight which are quite comparable with those of the other states. Like their male counterpart, the Meitei girls also show conspicuously higher mean body weights from the Andhra Pradesh, Kerala, Maharashtra and Uttar Pradesh girls. But with the Punjab and Orissa girls, the Meitei girls show higher mean
weights till the age of 4 years. In the later age groups, the Meitei girls again had higher mean body weights than the girls of the other states.

Over and above, the inter group comparisons so far made, the present population had also been compared with the well-to-do Indian population of ICMR (1994) data and in this case, the Meitei boys and girls have much lower distribution of mean values for height and body weight as well. The ICMR population shows marked higher mean heights at the range of 4-13 cm. among the boys and about 7 cm. among the girls. In case of body weight, the ICMR boys show 2-6 kg. mean weight higher than those of the Meitei boys and about 6 kg. higher mean weight in case of the girls at the age of 16 years.

From an overview comparison made between the mean values of the Meitei male children and of the USA children of the NCHS (National Centre for Health Statistics), it has been observed that the children of NCHS (1987) have been found having comparatively higher stature invariably in all the age groups. At the age of 0, the male children of NCHS begins with mean length/height of 72.3 cm., while the Meitei children show only 70.11 cm. in this age group. At this rate, by 10 years, the children of NCHS exceeded more than 10.0 cm. than the Meitei children and this trend, continue till the age of 18 years. In body weight too, the NCHS children had shown to have higher mean weight than the Meitei children. Initially at 0 age group itself, the NCHS children had a mean weight of 9.2 kg., but the Meitei children show only 7.64 kg. at this age. With a gradual trend of higher mean weight in most of the age groups, the NCHS children at the completion of 18 years, exceeded at least 4 kg. than the Meitei children.

In case of the female data too, the NCHS children were found to have much higher body height and weight than the Meitei children. For instance, the NCHS female children show a mean height of 71.1 cm. at 0 age group, while that of the Meitei children show only 69.07 cm. The rate of higher mean height still continue in all the age groups and as such at the age of 18 years, they exceeded by about 11.5 cm. from the Meitei children. In body weight too, the NCHS female children begins to
exceed with 2 kg. at 0 age level from that of the Meitei female children. As the age increases, the NCHS children still show higher rate of body weight. At age 10 years, the NCHS female exceeded by nearly 7.8 kg. and again at 18 years, they have exceeded by about 8.8 kg. from the Meitei children.

Conclusion

The finding that carbohydrate being consumed at the highest proportion among the class V and the least in class II socio-economic categories is the expected trend. The members of the former group are predominantly cultivators and labourers who exert more physical labour and they have the habit of consuming large quantity of rice compared to those members belonging to other higher socio-economic classes, more specifically than the later group. Such a proportional variation is confirmed with better evidence from the rate of consumption of protein sources that the members of class II had the highest consumption in it. The rate of its consumption concomitantly reduces with the lowering of the socio-economic status and that, the lowest being consumed by the members of class V categories. The phenomena is furthermore confirmed with the consumption pattern of fat, in which the trend of highest consumption rate is evident among the class II categories and the lowest again among the class V categories. It is a clear indication of having more opportunity of consuming more protein rich food items among the higher socio-economic classes than the lower ones. As for instance, consumption of fish, eggs, milk and milk products and other expensive vegetable items like mushrooms, beans, nuts etc and use of more cooking oil have obviously been found higher among the socio-economically better off families. This also co-relates with the consumption quantity of these items.

Therefore, statistically, there has been a significant variation in the consumption pattern of the protein and fat among the different socio-economic classes specially between those of the farther groups, conforming to the normal expected trend. However, the way how the quantum of calorie which may be said to be the sum total of the carbohydrate, protein and fat has been displayed rather in a homogenous manner, may taken as an index of least variation in overall nutrient consumption pattern among the different socio-economic classes.
As another dimension of the present study, investigations on the growth pattern of the boys and girls and also the general trend of physical and longevity pattern of the members of the populations belonging to different socio-economic classes in the purview of their variant nutrient consumption pattern, have also shown that no very marked or significant differences have been observed among the different class groups. Although, food as sources of different nutrient properties and which is considered to be as one of the sensitive environmental factors, has appeared not to give much impact in bringing variations in the growth pattern among the children and even the general physiological conditions of the people at large, among these different four groups.

The reasons could be many.

1. The Meitei population of the present village more particularly, and even other villages in general, are found to live in a homogenous and corporate manner. Rice is their staple food and cultivation is their primary occupation. The role of socio-economic background appears not to play a significant factor for bringing into marked variations in their food pattern and food habits.

2. Moreover, it is a general feature that most of the families of this locality do possess sufficiently large homestead, where the families could grow different seasonal vegetables, cereals and cash crops round the year for their own consumption and to sell off if there is surplus. Under the circumstances, the people, irrespective of their socio-economic background will have opportunities for consumption of more fresh and varied vegetables.

3. It has also been evident that the people belonging specially to lower socio-economic classes are found to consume larger quantity of food in most of the time. It is, of course, expected that they need to take at least more quantity of rice, as they may have to work hard and labour
more. This may be a factor for consumption of more carbohydrate source food amongst them.

4. The consumption of comparatively more food items of more protein and fat sources among the class II families or in other relatively higher socio-economic classes had contributed in bringing variations in the growth pattern and maintenance of general health conditions among these socio-economic class groups, whatever it may be marginal.

5. Significantly, the superior mean heights and weights observed in different age and sex groups among the members of relatively higher socio-economic classes, may be treated as the contribution of their better living qualities and environments, besides their opportunities to consume more protein and fat source items.

6. While considering the above factors, the subsidiary food acquiring pattern prevalent more commonly among the lower socio-economic families by way of catching local fishes and collecting of snails from the nearby swampy areas and paddy fields should also be taken into account as it could supplement their protein consumption. Therefore, whatever the observational variations appeared in respect of height and body weight among the different age and sex groups could not be proved to be significant through statistical comparisons.

7. Moreover, the general food consumption and food habit pattern prevalent among the Meiteis may be accounted as the main reason for maintaining a homogenous distribution of height and body weight between the two Meitei populations – one of the urban (Inakhunbi et al., 2001) and another of the semi-urban (present Meitei) sample among whom the maximum differences in height and body weight are within only 1 cm. and 1 kg. respectively.
8. Extremely low fat consumption percentage which have been recorded at an average of 18.66 gms. (min.- 13.06 gms in class V and max.- 24.51 gms in class II ) with compare to that of RDI record of 40 gms., may be explained on the basis of the food habit of the Meiteis, for their frequent consumption of Kangsoi (a cuisine of preparing dishes on the basis of simple boiling of suitable vegetables and ingredients often using dry fish as one and with salt for taste), Iromba (a kind of chutney using fermented fish) – and frequently supplemented with boiled vegetables without seasoning, which are the preparations almost free from fat contents.

9. Besides all, the consumption of a number of varied and favourite wild indigenous vegetables grown at the plain areas and some on the hill slopes, although, so far, not known for their nutrient properties, it is believed to have the benefit of adding to nutritive consumption, thereby increasing to the level of their caloric sum total.

10. The average calorie consumption of 2559.96 Kcal. (min.-2547.09 Kcal. in class V and max. 2568.72 Kcal. in class II) among these different social class groups, although comparatively to be much higher than that of the RDI record of 2400 Kcal. only, it could still be expected to be much higher should the consumption rate of fat base food have been increased among the Meiteis.

11. The Meitei children of both boys and girls, having shown quite a comparable growth rate in both height and body weight with the six populations of the ICMR, which are represented by Andhra Pradesh, Kerala, Maharashtra, Uttar Pradesh, Punjab and Orissa and even sometimes surpassing them by the Meitei children may be considered as an important indicator that the Meitei children in any case, are not in a disadvantageous situation in the opportunity for consuming variant nutritive food sources.
12. It is noteworthy that the Meitei children having shown approximately quite a similar growth pattern with the Andhra Pradesh and Kerala children might indicate that the populations, although wide apart, incidentally had a similar food habit specially in respect of the rice and fish consumption.

13. Of course, a much superior height and growth rate as reported from among the children of the well to do families of India (ICMR, 1994) with the manifestation of heights at the range of 4 cm. to 13 cm. and the body weight at the range of 2 kg. to 6 kg., more than the Meitei boys, is a clear discrimination between the two populations. The same trend has also been the case for the females. It may, however, be pointed out that the data of the ICMR, representing sample from the well to do section of the societies, have been drawn representing much heterogenous populations by covering wide geographical regions and ethnic groups, and as such, it is questionable that how far the comparision of the ICMR data with the present data may be appropriate. A similar marked variation has also been observed when the present population has been found too far inferior in the distribution of the height and body weight to the USA children (NCHS). At least, for the later case, it has been a known fact that the American and European children are always in a better position when compared with the populations of many underdeveloped and other developing countries.

The findings of the study has confirmed that the kind of food intake and food habit pattern are responsible for the sources of different kinds of nutritional properties as consumed by the people. Depending on the socio-economic background of the present Meitei population, a cline of variation in the consumption pattern of fat and protein have very well been observed. The way that no significant differences in terms of the overall nutritional consumption pattern and also in the distribution of height and the body weight, have ultimately, not been perceptible among the groups,
irrespective of their socio-economic background, may be due to the fact that they belonged to the same ethnic group and moreover, shared a closely clustered habitation and environmental niche. Unknowingly, the poorer socio-economic groups of the present population had their own means of compensating certain nutritional qualities through their peculiar food acquiring and consumption pattern, as discussed earlier. May be, paradoxically the poorer groups, sometimes, consumed better nutrition than the richer groups.

Although, the consumption of food among the Meiteis (2559.96 kcal.) is much higher than the average consumption of other people of India (1800 – 2000 kcal., Manay and Shadakasharawamy, 1987) or even than that of the RDI, (2400 kcal., ICMR 1981), yet, there is a deficit when it is compared with that of the developed countries (3000-3500 kcal., WHO, 1974). In view of this, the Meiteis of Manipur, and more specifically the general population of the country, needs to supplement their food consumption rate.

The present thesis, as being the first of its kind, though may be of a micro level study, would surely provide valuable information in the area of food taking pattern, food habit and nutritional sources and its effect on the general growth and biology of the Meiteis. Furthermore, it would also provide valuable data necessary for the public health and nutritional planners.