SUMMARY AND CONCLUSION

The study on “Nutritional status of postmenopausal women” was conducted in Thiruvanathapuram district covering both rural and urban population. Chirayankeezh Taluk represented the rural population (N=300) and the urban subjects (N=300) were selected from Thiruvanathapuram taluk. Subjects consisting of 600 postmenopausal women as experimental group, 200 premenopausal women with matching socio-economic background and age were identified as control group representing both rural and urban population. An interview schedule was formulated to elucidate information on the socio-economic background, life style pattern, health and medical history, nutritional profile of the subjects was assessed through anthropometry, diet survey, biochemical estimations, clinical examination. Anthropometric measurements such as height and weight, waist and hip circumferences were recorded for the subjects and corresponding Body Mass Index (BMI) and Waist - Hip Ratio (WHR) were computed. By 24 hour recall method nutrient intake of all the subjects were assessed. Blood haemoglobin level and Blood pressure were estimated using standard techniques. Clinical assessment was done to the subjects to assess various clinical signs and symptoms. Nutritional Status Index was computed both for experimental and control group from the nutrient-intake (calcium, Phosphorous and iron), Body Mass Index, Waist Hip Ratio and haemoglobin level for all the 800 subjects. A comparison with the control group of premenopausal women of the same socio-economic background and same mean age was done on factors such as Body Mass Index, Waist-Hip Ratio, blood haemoglobin level.

Out of the 800 subjects indepth study was conducted for 160 subjects (120 postmenopausal women (experimental) and 40 premenopausal women
(control) selected at random to assess the mean nutrient intake (food weighment method) Bone Mineral Density, Serum calcium and phosphorus and lipid profile. Results of the indepth study was also compared between the experimental and control group. Appropriate diet counseling was imparted to the subsample. A checklist was used to assess the knowledge of the subjects before and after the diet counseling. Scores were given to every correct answer and the total score was 30. The impact of diet counseling was analysed from the difference in scores obtained before and after diet counseling.

The results revealed that

Among the experimental group 75.00 per cent of the subjects were above 50 years of age in the rural area and in the urban area 69.00 per cent were above the age of 50 years. 25.00 percent of the subjects in rural area and 31.00 percent in urban area were below 50 years.

Data on family composition revealed that 55.67 per cent of the subjects had three or four members in the family in rural area while in urban area 70.34 per cent had small family. In rural area 38.66 percent of the subjects had 5-6 members in the family while in urban area only 22.33 per cent had 5-6 members.

Regarding educational status of the selected subjects it was observed that 98.00 per cent of the subjects in rural area and all the subjects in urban area were literate with different levels of education. Only 9.00 per cent of the subjects in rural area had education of higher secondary and above. While in urban area 61.67 per cent of the subjects had higher secondary and above level of education.
Data on family income status revealed that 75.00 per cent of the subjects had family income below 5000/- rupees per month in rural area and in urban area 17.33 per cent of the subjects had family income below 5000/- rupees per month. In rural area only 21.33 per cent of the subjects had family income 5001-10,000. In the rural area none of the subjects had family income above 15,000 while among the urban subjects 15.00 per cent of them had an income above 15,000.

Regarding the exercise pattern of the subjects it was observed that only 2.00 percent of the subjects do some exercise in rural area while 16.67 per cent of subjects in urban area used to do some form of exercise mainly walking.

In rural area 95.34 per cent of the subjects had the habit of drinking tea while 92.33 percent of the subjects in urban area drank tea and the frequency of consumption indicated 49.00 per cent consume 4-5 cups in rural area while in urban area 52.00 percent consumed below three cups of tea. Consumption of tea has some connection with Bone Mineral Density.

Data on the social life of the subjects revealed 63.33 per cent of the subjects in rural area and 12.00 per cent in urban area had the habit of sharing thoughts and feeling with others. 37.00 per cent of the subjects in rural area were stressed due to poor financial condition while in urban area it was 21.33 per cent. Physical stress was experienced by 48.34 per cent of rural and 60.00 per cent of urban subjects.

Focus on bettle chewing habit revealed that 42.67 per cent of the subjects in rural area had the habit of chewing pan. While it was 16.67 per cent in urban area. Among the rural (16.00 per cent) and urban subjects (4.67 per cent) the frequency of bettle chewing was 4-6 times a day.
Regarding social status of the subjects, major decisions in the family were taken by husband in 74.67 per cent of families in rural area and in urban area it was 86.00 per cent. Most of the subjects were satisfied with the decision taken by elders. 85.33 per cent of the subjects in rural area and 75.67 per cent of the subjects in urban area felt that their views and opinions were considered in decision making. Regarding freedom to spend money 70.33 per cent of the subjects in rural area and 98.00 per cent of the subjects in urban area had freedom to spend the money.

72.67 per cent of rural subjects and 52.67 per cent of urban subjects participated in social organization in the community. While 21.00 per cent of the subjects in rural area and 13.67 per cent in urban area actively participated in Ayalkuttam. The subjects also actively participated in kudumbasree in rural area (51.67 per cent) and urban area (39.00 per cent).

Majority of the subjects depended on TV as the source of information in rural area (54.34 per cent). Evenings they spend watching TV with their family members. 23.33 per cent listened to radio as they were always busy with house hold chores. Only 19.00 per cent of rural subjects used to read newspaper for source of information. While in urban area 34.67 per cent of the subjects got information through newspapers. 31.00 per cent of the subjects watched TV and got information while 19.33 per cent had information from internet, get togethers etc.

Data on the age of menarche revealed that 79.69 per cent of the subjects in rural area attained menarche before 15 years of age and 20.33 per cent attained menarche between 15 and 18 years of age. In urban area 95.33 per cent of the subjects attained menarche 15 years of age and 4.67 per cent after 15 years. 63.00 per cent of subject in rural area and 40.67 per
cent in urban area were found to have premenstrual syndrome. Of the
subjects who had premenstrual syndrome in rural area 41.67 per cent had
stomach pain and 21.33 per cent had headache while in urban area 28.00 per
cent had stomach pain and 12.67 per cent were found to have headache.
Regarding age of marriage 53.00 per cent had their marriage before the age
of 19 and 42.67 per cent between 20 and 24 years in rural area. While in
urban area 68.00 per cent of the subjects had their marriage between 20 and
24 years. 66.33 per cent of the subjects had 4-6 pregnancies in rural area
. While in urban area maximum (67.00 per cent) had 1-3 pregnancies. Data on
history of miscarriage revealed that 15.00 per cent in rural area had still birth
and 11.00 per cent had abortion while in urban area it was 9.00 per cent and
8.00 per cent.

Regarding the nature of delivery it was found that 16.67 per cent of
the subjects had caesarian section and 83.33 per cent had normal delivery in
rural area while in urban area 26.67 per cent had caesarian section and 73.33
per cent had normal delivery.

Breast feeding duration of the subjects in rural and urban area revealed
that in rural area 21.00 per cent were found to breast feed upto 12 months
and 43.33 per cent fed upto 19 months. 35.67 per cent fed upto 26 months.
whereas in urban area 54.00 per cent had the duration of breast feeding
upto 12 months, 35 per cent upto 19 months and only 11.00 per cent upto 26
months.

31.00 per cent of the subjects in rural area and 71.00 per cent in urban
area had used family planning methods for birth control. In rural area 14.33
per cent used condom and 18.00 per cent used Co.T as birth control
measures while in urban area 46.33 per cent used condom and 24.67 per cent used Co.T.

For health care in rural area 14.33 per cent visited Public Health Centre due to easy accessability and 72.34 per cent consulted doctors in government hospitals while only 13.33 per cent approached private hospitals. But in urban area 55.33 per cent of the subjects visited Government hospitals for consultation and 44.67 per cent approached private hospital and none of them went to Public Health Centre.

Data relating to menopausal symptoms revealed that 18.00 percent from rural and 23.00 per cent from urban area had problems in the menstrual flow at the time of menopause. The predominant symptoms experienced by women after menopause was hot flushes in 40.67 per cent of rural subjects and 61.66 per cent of urban subjects. The next predominant symptom was fatigue (35.00 per cent in rural area and 50.67 per cent in urban area). Osteoporosis related condition such as joint pain, knee pain, back pain and hand / leg pain were experienced by 82.00 per cent women in rural area and 68.00 per cent in urban area. Night sweats were experienced by 16.67 per cent of subjects in rural area and 11.67 per cent of subjects in urban area. 51.00 per cent of the subjects in rural area and 33.00 per cent in urban area reported of not having any menopausal symptoms.

The medical history revealed that high blood pressure was predominant disease prevalent among the subjects in both rural and urban area. 28.00 percent in rural area and 38.33 percent in urban area had high blood pressure and were under medications. Dizziness and severe headache were the common symptoms identified in hypertensive subjects. 13.66 per cent of the subjects in rural area and 24.67 per cent of subjects in urban area
were diabetic. Polyuria, polydipsia, polyphagia and loss of body weight were the symptoms identified which provoked for medical attention. As most of the subjects in urban area were physically inactive and had high calorie intake 13.00 per cent were having heart disease it was 8.67 per cent in rural area. These women had any one of the risk factors such as obesity, hypertension or diabetes mellitus.

The nutritional status of the subjects was ascertained by anthropometric profile, recording nutrient intake through 24 hour recall and haemoglobin level for all the 600 subjects.

The BMI classification of the subjects indicated that in rural area 19.67 per cent of the subjects were underweight, 52.00 per cent had normal BMI range of 18.5-22.9 and 16.67 per cent had grade I obesity, 2.00 per cent had grade II obesity. While in urban area 6.00 per cent of the subjects were underweight only 27.67 per cent had normal BMI, 30.33 per cent had grade I obesity and 14.67 per cent had grade II obesity.

Waist-Hip ratio among the subjects disclosed that in the rural area 67.00 per cent of the subjects had normal Waist Hip Ratio (below 0.8) While in urban subjects 83.33 per cent had Waist-Hip Ratio above 0.8. Hence majority of subjects in urban area were at risk.

An insight into the food consumption of the subjects unfolded that all the subjects in rural area were non-vegetarians. Rice was the staple diet. Pulse consumption pattern showed that 40.33 per cent of subject in urban area included pulses once a week while in rural area 26.67 per cent included pulses in their diet rarely. Tapioca was most preferred in rural area 47.00 per cent of the subjects in rural area consume roots and tubers daily. In urban area 37.00 per cent consume tubers thrice a week. Consumption of leafy
vegetables and fruits were very less. Milk was mainly incorporated in the diet in the form of tea and coffee. Fish consumption among the subjects indicated that 62.67 per cent of the subjects in rural area consume fish daily while 40.00 per cent in urban area consume fish daily. 50.67 per cent of the subjects in rural area consumed meat rarely. While in urban area 52.00 per cent consumed meat weekly once. Regarding the consumption of egg 49.00 per cent of the rural subjects consume egg occasionally while 71.00 per cent of urban subjects consume egg rarely. Frequency of consumption of foods revealed the use of cereals, beverages, fish daily. Spices and condiments, roots and tubers were frequently used foods. Less frequently used foods included other vegetable, milk, sugar and jaggery. Pulses, green leafy vegetables, egg, meat, preserved foods were least frequently used foods.

Focus on food habits of the subjects 48.67 per cent of rural women skipped their meal and it was mostly breakfast which they skipped because of their busy morning schedule. While in urban area of the 41.33 percent skipped dinner. 53.33 per cent of rural subjects and 83.00 per cent of urban subjects did not have fixed time for taking meals. 26.33 per cent of the subjects in urban area have aversion to certain foods such as non vegetarian foods, bitter gourd etc. Majority of the subjects followed three meals per day in both rural and urban area (54.67 per cent and 66.00 per cent). The type of meal was light in rural area (66.67 per cent ) and equally heavy meal in urban area (45.33 per cent ).

In rural area 84.00 per cent of the subjects never used to reject food when it is frequently served as they are accustomed to particular type of food but in urban area 53.67 per cent of subjects used to reject the food when it is frequently served. Majority of subjects in rural area (65.00 percent) and urban
area (53.67 percent) restricted their food intake due to weight/health/problem.

Due to poor income in 60.67 per cent of the rural subjects items included in the diet were effected by the food price while only in 40.67 per cent urban subjects the food price have an effect.

32.33 per cent of rural subjects and 47.67 per cent of urban subjects followed fasting. Majority of the subjects in both areas followed fasting once a week mainly due to religious reasons.

Data on family meal planning and food distribution revealed that majority of the subjects selected the food. (Rural - 64.67 per cent, Urban – 63.67 per cent). 71.67 per cent of rural subjects and 59.67 per cent of urban subjects purchased food items in the family. Majority of the subjects prepared the food and a greater percentage of subjects distributed food among the household members (more than 70.00 per cent). The food distributed in the family were based on age in 28.33 per cent of the rural household but only in 9.67 per cent of urban household food was distributed based on age. In rural area only 17.67 per cent eat in group along with other family members while in urban area 43.33 per cent eat in group.

Data on the mean nutrient intake of the subjects through 24 hour recall revealed that among the rural subjects intake of all nutrients were inadequate. Among the urban subjects the mean intake of fat, energy were adequate.

Biochemical estimation of blood haemoglobin in all the 600 subjects indicated that 67.33 per cent of rural subjects and 56.67 per cent of urban subjects were anemic with blood haemoglobin level between 9-11g/100 ml.
32.67 per cent of rural subjects and 43.33 per cent urban subjects had normal haemoglobin level of 12-14 g/100 ml.

Data on blood pressure revealed 71.67 per cent of rural subjects and 62.33 per cent of urban subjects had normal blood pressure. 10.33 per cent of rural and 14.67 per cent of urban subjects had high blood pressure (130-139/85-89 mm Hg). In rural area 10 per cent had stage I (140-159/90-99 mm Hg) blood pressure and 8 per cent had stage II (160-179/100-109 mm Hg) while in urban area it was 15.67 per cent and 5.33 per cent respectively. In rural area none had stage III (180-209/110-119 mm Hg) blood pressure but in urban area 2 per cent had stage III level of blood pressure. All were under medication.

An insight into the clinical assessment of the subjects in rural area revealed that in rural area 61.67 per cent of the subjects had good healthy appearance while 28.33 per cent had fair healthy appearance and the other 10.00 per cent had poor healthy appearance. 20.67 per cent had xerosis of conjunctiva. 10.00 per cent had pigmentation of the eye. Among the subjects 13.67 per cent had mild angular stomatitis, 10.67 per cent had pale colour of the tongue and 28.67 per cent had bleeding gums. In rural area 11.67 per cent had pitting of teeth, caries was present in 26.00 per cent of the subjects. Assessment of hair condition revealed 7.67 per cent had lustureless hair and 3.00 per cent discoloured and dry hair. Odema was present in dependent parts in 15.00 per cent of the subjects. Anorexia was experienced by 25.00 per cent of the subjects. Loss of lusture of the skin was noticed in 9.33 per cent of the subjects. 98.67 per cent of rural subjects did not have stigmata of past rickets. Parathesia was present in 54.00 per cent of the subjects.

Clinical assessment of urban subjects revealed that 78.00 per cent of the subjects had good healthy appearance while 20.67 per cent had fair
healthy appearance and only 1.33 per cent had poor healthy appearance. The urban subjects had xerosis of conjunctiva (11.67 per cent) pigmentation (7.00 per cent) and slight discolouration (1.33 per cent) of the eye. Mild angular stomatitis was observed in 3.00 per cent, pale colour of tongue in 6.33 per cent, 12.33 per cent had bleeding gums, 7.67 per cent had pitting of teeth and slight caries in 12.00 per cent of the subjects. Lustreless condition of hair was observed in 3.33 per cent of the subjects. Odema on dependent parts was noticed in 19.67 per cent. Anorexia was experienced by 8.00 per cent of the subjects. Normal appearance of the skin was observed in 88.00 per cent of the subjects. Stigmata of past rickets was not present in 99.67 per cent of urban subjects. Parathesia was present in 58.00 per cent of the subjects. The above signs and symptoms depicted from clinical assessment may be due to poor dietary intake of the subjects as revealed from the dietary assessment.

The subjects in rural area had mean value of Nutritional Status Index of 8.05 and the subjects in urban area had mean value of 9. The coefficient of variance for the subjects in rural area was 16.57 and for the subjects in urban area it was found to be 8.87. So there was wide difference in index variables in rural area than urban area. 69.66 per cent of the subjects in rural area and 67.67 per cent of the subjects in urban area had medium level of Nutritional Status Index. 0.67 per cent of the subjects in rural area and 31.33 per cent of the subjects in urban area belong to high Nutritional Status Index category. 29.66 per cent of the rural subjects were found to have low Nutritional Status Index and in urban area only 1.00 per cent of the subjects were having low level of Nutritional Status Index.

High blood pressure was predominant disease prevalent among the subjects in both rural and urban area. Among the rural subjects 19.67
percent were under weight while 30.33 percent of urban subjects had grade I obesity. Assessment of Waist-Hip ratio of the subjects revealed in rural area 33.00 and 83.34 percent of urban subjects percent had a Waist-Hip ratio above 0.8. Food frequency pattern of the subjects revealed cereal based diet with low intake of protective foods. Intake of major nutrients were below the RDA. There was gross inadequency in the intake of other nutrients also. The mean intake of calcium was very low. Assessment of blood haemoglobin of the subjects revealed 67.33 percent and 56.67 percent of rural and urban subjects respectively were anaemic. Clinical assessment of the subjects indicated 14.00 percent in rural area had angular stomatitis 26.00 percent had bleeding gums, 20.00 percent of the subjects in urban area had oedema on dependent parts, loss of lusture of skin in 6.33 percent, 58.00 percent had paresthesia. Based on the above findings on post menopausal it was felt necessary to assess the Nutritional profile of premenopausal women. Hence in the present study 200 premenopausal women of the same age groups and socio-economic background was taken as control group. Certain parameters such as BMI, Waist -Hip ratio, Blood haemoglobin level, Total income, nutrient intake and Nutritional status Index of the subjects was compared between experimental groups of post menopausal women (N=600) and control groups of premenopausal women (N=200).

Obesity is found to be more prevalent among postmenopausal women compared to premenopausal women. Greater percentage of subjects in experimental group had Waist –Hip ratio above 0.8 when compared to control group in both rural and urban area. A greater percentage of premenopausal women both in rural and urban area had better blood hemoglobin level than the experimental group.
Data on the mean nutrient intake by 24hr recall method revealed that the mean intake of protein was comparable with RDA only in control group of urban area. The fat intake was very high in urban area. The mean calorie intake of rural experimental and control group did not meet the RDA while the calorie intake was very high in urban area. ANOVA Test indicated significant difference in protein, fat, carbohydrate energy intake and fibre intake among the four groups namely experimental and control groups in rural and urban areas. The mean values of calcium, Iron, Phosphorus also indicated that none of the groups met the RDA and ANOVA test indicated that the calcium intake of the women, varied significantly across the four groups. The mean intake of vitamins namely carotene, thiamine, riboflavin, niacin, free folic and Total Folic acid did not meet the RDA in all the four groups. ANOVA test indicated the intake all the vitamins varied significantly across the four groups.

Nutritional Status Index values of premenopausal women are clustered around the average index and higher Nutrition Status Index in urban area while the scene is entirely opposite in rural area where the values are more concentrated in poor index status and medium index status.

In depth study on a subsample of 120 postmenopausal women and 40 premenopausal women to assess the nutrient intake (Food weighment method), Bone Mineral Density, serum calcium and phosphorus and lipid profile.

The analysis of the actual food intake of the rural subjects disclosed a deficit intake of all food items. The percentage of RDA met for the consumption of leafy vegetables, fruits were found to be very low. Among urban subjects a deficit in intake of all food item except cereals, milk and milk products, sugar and jaggery were observed.
Analysis of Bone Mineral Density of the subjects revealed 46.67 per cent of the rural subjects were found to have osteoporosis, 43.33 per cent were of the osteopenia condition and only 10.00 per cent of them had normal Bone Mineral Density. However among the urban subjects 26.67 per cent were found to have osteoporosis, 53.33 per cent were of osteopenia condition and 20.00 per cent had normal Bone Mineral Density. Hence greater percentage of subjects in rural area had osteoporosis while osteopenia condition was dominating in urban area.

The mean value of serum calcium of rural subjects was 9.335 mg/100ml and serum phosphorus was 4.186 mg/100ml. However the mean serum calcium and serum phosphorus of urban subjects were 9.478 mg/100ml and 4.11 mg/100ml respectively. The serum calcium level of subjects in both rural and urban area were close to lower limit of normal range 9-11mg/100ml. This may be due low calcium intake much below the RDA revealed from dietary evaluation.

The rural subjects had a mean cholesterol level of 190.98 mg/100ml while the urban subjects had 226.6mg/100ml which was higher than the normal value.(<200). The mean value of serum triglyceride of rural subjects and urban subjects were 144.2mg/100ml and 188.9mg/100ml respectively. The mean HDL-Cholesterol of rural and urban subjects were 45.41 mg/100ml and 38.5mg/100ml respectively, both the groups did not have normal requirement (>50mg/100ml) of good cholesterol. The LDL-cholesterol level of rural subjects was 116.7mg/100ml while the urban subjects had a mean value of 150.11mg/100ml which was greater than the normal (<130mg/100ml). The mean serum VLDL- cholesterol of rural subjects was 28.8mg/100ml but the urban subjects had higher value (Normal <30mg/100ml). The data on lipid
profile of the subjects revealed that the levels were higher than normal in urban subjects.

The indepth study done on postmenopausal women (N=120) was compared with premenopausal women (N=40). Comparison of BMD of experimental and control group revealed that after menopause there is marked decrease in Bone Mineral Density. In experimental group only 10.00 per cent of rural and 20.00 per cent of urban subjects had normal BMD. But more than 50.00 per cent of the subjects in control group had normal BMD.

The nutrient intake of subsample of postmenopausal women and premenopausal women by food weighment method revealed that the mean protein intake of premenopausal women in urban area only met the Recommended Dietary Allowance. ANOVA test indicated the intake of protein, carbohydrate, energy varied significantly across the four groups. The mean values of mineral intake revealed that calcium, Phosphorus and iron intake did not meet the Recommended Dietary Allowance. ANOVA test revealed that the calcium, Phosphorus and iron intake varied significantly across the four groups. The mean intake of vitamin namely carotene, thiamine, riboflavin, niacin folic acid and vitamin C varied significantly across the four groups in rural and urban area.

Though the blood serum calcium analysis revealed mean serum calcium and phosphorus levels were better in control group than the experimental group. Statistical analysis 't' test performed indicated that there is no significant difference in the serum calcium level of experimental and control group both in rural and urban area. Statistical analysis by 't' test
revealed there is no significant difference in the serum phosphorus level of experimental and control group both in rural and urban area.

Statistical analysis 't' test performed on lipid profile showed significant difference in the total cholesterol (t=3.20**) between experimental and control group in rural area. Analysis also revealed significant difference in triglyceride levels (t=2.55**), HDL cholesterol (t=2.54*) and LDL cholesterol (t=2.85*) between postmenopausal and premenopausal women in rural area. But surprisingly no significant difference in the above parameters were found between experimental and control group in urban area.

Diet counseling for the subsample of subjects revealed that counselling made a remarkable and significant impact on the knowledge level of the subjects, and it had a rural-urban differential in its effect (F = 37.51; p < .01), with greater gain of knowledge observed on the rural subjects. The rural respondents were having about 34 percent lesser knowledge initially than that of the urban. However, the counselling made the difference shrunk by about 15 percent (25.13 to 21.42). Thus, it could be concluded not only that the counselling process was beneficial to the subjects, but also that it made greater improvement in knowledge on the rural subjects than that of the urban, who were found initially having higher level of knowledge than that of the rural.

Based on the findings drawn from the study it was felt that Post menopausal period is a very important period in the life of every women. Hormonal changes occurring during this period cause discomfort, nutritional and non nutritional disorders. Menopause is not a disease. If menopause is viewed as the end of youth and sexuality, the period will be much more
difficult than if it is viewed as the next phase of life. With progressive reduction in mortality in women during the reproductive period, the number of women in the menopausal and Post-menopausal group will increase. Information on health problems arising from menopause and nutritional guidance for this important phase of life should be widely disseminated.

While menopausal symptoms may not be life threatening, they could cause considerable distress and sometimes even alarm. Programmes of nutrition education beamed to women must include advice regarding possible symptoms during menopause and desirable dietary changes.

Women should be well educated to follow correct life style practices and dietary habits to overcome the trauma produced during this period and to preserve health and well being. Modifications in the therapeutic lifestyle pattern of postmenopausal women is highly essential. This will help to prevent development of nutritional disorders. Judicial selection of food will help to combat nutritional deficiencies in the particular age group.

Nutritional factors are relevant to bone health in postmenopausal women, dietary supplementation may be indicated for the prophylaxis of osteoporosis. Adequate nutritional recommendations and supplements should be given before menopause and dietary evaluation is mandatory in treating postmenopausal osteoporosis.

RECOMMENDATIONS

(1) It is recommended that clinics exclusively for women after menopause should be established at district levels.
(2) Awareness programs on the problems during menopause, dietary and nutritional guidelines and their influence on bone health should be created through different medias by the government.

(3) Counseling centres for both Dietary and psychological should be established in each district.

(4) Postmenopausal women should also be cared. Nutrition prophylaxis programs should be planned by the government to this group. Since life expectancy of women is increasing in India, longer period of life after menopause will be there and it should be a disease free stress free enjoyable period to women.