5. SUMMARY AND CONCLUSION

The present study entitled “Health and Nutrition Profile: A study in old age homes at Ernakulam, Kerala” comprised of two major phases. Phase I dealt with the infrastructural facilities and service efficiency of the old age homes in Ernakulam district. Phase II dealt with the health and nutrition profile of the inmates of these old age homes.

The two districts of central Kerala such as Kottayam and Ernakulam have the highest number of old age homes than others, of which Ernakulam a cosmopolitan city is referred as the industrial capital of Kerala. The rapid urbanization and industrialization and the resultant changes in the life style of people, may have its own impact on the society and family and so on the life of the aged people. Ernakulam district has been identified as the potential area for the present study.

As an initial step, the list of old age homes in Ernakulam district was obtained from the Department of Social Welfare, Ernakulam. All the 16 old age homes were included in the study. The homes were then categorized into three groups based on their location such as Corporation, Municipality and Panchayat. 300 inmates who were of sixty years and above, and willing to cooperate with the study were selected randomly.

The direct interview method, the most popular method in modern research was the technique used to obtain information from the authorities of the institutions as well as from the inmates residing in these institutions.
Anthropometrical assessment and clinical examination was done on all sample (60 males and 240 females). Food weighment survey and estimation of blood haemoglobin was done on selected sub sample (15 male and 15 female).

The data was tabulated and analysed statistically using appropriate techniques such as percentages, $\chi^2$ analysis, Rank correlation coefficient and regression analysis.

The results of the present study can be summarised as:

**PHASE I**

The first institution for the aged in Ernakulam district came into existence in 1921 and it was in Panchayat area. The latest addition to the list of old age homes was in the corporation area of Ernakulam district during the year 1997. As far as the number of homes was concerned Panchayat area ranked first with nine homes followed by Corporation area (5 homes) and Municipality (2 homes).

Regarding the founding agencies of the homes, it was noted that majority (87.50%) was initiated by the Christian Missionaries. Hindu Charitable society and Government of Kerala were responsible for initiating one home each.

The surroundings of most of the homes (62.50%) were calm and peaceful whereas it was crowded and noisy with respect to 37.50 percent of the homes. 50 percent of the homes had adequate outdoor space which was well maintained with garden and trees. All the homes in the municipality and 60 percent homes in the corporation area also had this privilege.
Majority of the homes (93.80%) had their own land and buildings, which included 100 percent of homes in Corporation, 100 percent in Municipality and 88.90 percent in Panchayat area. 11.10 percent of homes in Panchayat area were functioning in rented buildings.

Majority of the homes (56.30%) were exclusively for female elderly only. But in 43.80 percent of the homes, both males and females were admitted. There was no institution exclusively for elderly men. Religion was not considered as a criterion for admission in all the homes of municipality, 80.00 percent in corporation and 67.00 percent in panchayat whereas in the rest of the homes (20.00% corporation and 33.00% panchayat), only Christians were given admission.

Majority of the old age homes (62.50%) made use of their own fund and public contribution for their establishment. All the homes received government grant, at the rate of rupees 125 per inmate per month to meet the day to day expenses. In majority of the homes (81.20%), public contribution was the additional source of income.

The sanctioned strength of inmates in the homes studied varied from 50 to 200; with 75 percent of the home having an allotted strength of 51 to 100 inmates. But at the time of initiation the number of inmates in 68.80 percent of the homes were less than 10 which were far below the sanctioned strength. The present strength, at the time of study indicated that 37.50 percent of the homes had an intimate strength of 51 to 100. All the homes in municipality, 60.00 percent homes in corporation and 44.40 percent in panchayat had dormitory facilities. When the storage space for keeping
personal belongings of the inmates like dresses, toiletries etc was considered, 56.30% of the homes provided individual cupboards to the inmates near the bedside.

Regarding the availability of indoor space, it was found that irrespective of locations, all the homes had separate cooking area and bathroom/toilets. Separate dining area was observed in 87.50 percent of homes including all the homes in corporation and municipality. Sick rooms and living/recreation rooms were found in 75.00 percent and 68.80 percent of the homes respectively.

The appropriateness of the accommodation facilities in the old age homes was studied by the way it has been equipped for the comfortable living of elderly. Majority (81.30%) of the homes studied had adequate facilities in the sleeping area which included 100 percent of the homes in corporation and municipality and 66.70 percent of the panchayat area. Bathrooms and toilets in majority (75.00%) of the homes were also had adequate facilities.

Living or recreation area was not adequate in majority of the homes (43.80%) and somewhat adequate in 18.80 percent of the homes. In the case of dining area also, equipping with just adequate provision was found in majority (50.00%) of homes. Lack of dining area (12.50%) and inadequacy in dining area (18.80%) were observed mainly among the homes in panchayat. As far as kitchen is concerned it was found that they were either equipped with just adequate arrangements (50.00%) or totally inadequate (37.50%).

The maintenance of the indoor space was studied by means of personal observation of the investigator for three consecutive days. A score card was used to
record the observation. The results revealed that only prayer room was well maintained by majority (87.50%). Other areas secured a score ranging between 50 to 80 percent indicating average cleanliness.

Adequacy of lighting during the day and night was also studied. Opinion of the inmates with respect to the adequacy of day and artificial lighting was also recorded. The mean score was taken as the score obtained by each home. Natural light was adequately available during the day time in areas like living or recreation (68.80%) and prayer rooms (56.25%) where as only in 37.50 percent of homes the sleeping area had sufficient lighting. In majority of homes, kitchen (81.25%), bathroom (62.50%) and dining area (50.00%) had only moderate lighting which needs to be addressed. Majority of the homes (81.00%) used fluorescent lamps for lighting the indoor space of homes at night. Adequacy of artificial lighting showed that majority of indoor space areas got only moderate lighting including kitchen (75.00%), bathroom/toilet (75.00%), sleeping area (68.80%), dining (62.50%) and living rooms (50.00%).

Cements, red oxide, mosaic and ceramic tiles were the different types of flooring observed in the old age homes. But majority of the homes had cement flooring only in sleeping area (62.50%), kitchen (62.50%), dining area (50%), living area (43.80%), toilets (37.50%) and store rooms (31.30%). As most of the buildings were single storied, stairways were present only in 25.00 percent of the institutions. It was observed that the stairways in all the corporation homes (100%) had broad steps
and the stairways in the panchayat home (100%) had narrow steps. But all the stairways had railings as a safety measure.

European closet (93.70%) and hot water facility (56.30%) were the main arrangements specially done in the homes for the elderly. Other requirements like grab bars, shower connections, provision to sit while bathing and raised platform for bucket were not given any importance in most of the homes.

Except transportation (75.00%), shopping centre (62.50%) and telephone booth (50.00%), the rest of the essential services such as park (100%), post office (75.00%), reading room (75.00%), bank (62.50%) and hospitals (56.30%) were located far away from home. This observation was irrespective of the location of homes.

For food service, none of the homes were considering the preference of inmates or the nutritive value of foods with food selection. Cost of food was the criterion given preference by all the homes. In majority of the homes, the inmates were not involved in the food purchase (75.00%) and meal planning (68.75%) activities. 68.75 percent of the homes occasionally provided the ready to eat foods to the inmates in the form of snacks with evening tea. 25.00 percent of the homes, that is, 40.00 percent homes of corporation and 22.22 percent homes of panchayat area took special care to provide therapeutic diet to the inmates with degenerative diseases, particularly diabetes.

All the homes reported providing adequate clothing to the inmates. The frequency of supply of clothing to the inmates, was twice in a year (50.0%) or only
once in a year (37.50%). 12.50 percent of the homes supplied clothing as and when required. Stone washing (50.0%) and machine washing (50.00%) were method of washing clothes. As far as the assistance for washing clothes, the inmates helping one another was practised mainly in the homes of municipality (100%) and panchayat (66.70%), but 80.00 percent of homes in corporation institutional help was also available to the inmates.

Only 6.30 percent of the homes studied had a medical clinic inside the premises. None of the homes had any medical practitioner. But availability of a trained nurse (56.25%) in the homes helped to handle the situation to certain extent. Still there were (43.75%) of homes without having any health personnel to attend the medical needs of inmates. At the same time availability of a pharmacy and first aid facilities in the homes (31.25%) was quite encouraging.

Recreational activities has been given some priority in the old age homes. Majority of the homes (87.50%) had a Television set and watching Television daily was the main entertainment of the inmates in 56.25 percent of homes. Spiritual magazines (62.50%) and reading newspaper (56.25%) were also found to be part of indoor recreational activities of the inmates. As far as outdoor activities were concerned, picnics/outings were arranged by 31.25 percent of the homes. Mostly the homes of corporation (40.0%) and panchayat (33.33%) area had this arrangement.

For personal cleanliness, 43.75 percent of the homes took special effort to create awareness among the inmates about its importance. The homes were also made attempts to check whether the inmates practised the basic hygienic measures such as
brushing teeth daily (75.0%), daily bathing (37.50%), changing dress (37.50%) and changing of bed linens regularly (37.50%).

Daily sweeping of the homes and surroundings was reported by 87.50 percent of the homes which included 100 percent each of homes in corporation and municipality and 77.80 percent of the homes in panchayat. Mopping of rooms was done mostly on weekly basis (37.50%) followed by once in a day (31.25%) or on alternate days (31.25%). Bathroom cleaning was also done either on daily basis (37.50%) or on alternate days (31.25%).

Control of pests and insects like flies, mosquito, cockroach and mice was also found to be a matter of concern for all the homes. Various measures were used such as mosquito nets (31.25%), repellents (25.0%) and wire mesh (25.0%). Burning the garbage was the mode of disposal adopted by majority (56.25%) of homes. Use of incilinator (25.0%) and depositing the garbage in compost pit (18.75%) were also practised. Incilinator was found only in 80 percent of corporation homes. Liquid waste was mainly disposed through closed drain (43.75%).

Well water was found to be the major source (56.25%) of drinking water in the homes followed by tap water (31.25%) supplied by Government water supply department. Electrification was also there in all the homes (100%) studied. But the provision of generator or other alternative to be used at the time of power failure was not there in any of the homes.

Majority of the homes (68.75%) arranged prayer meetings for the inmates, either under the initiative of the institutions (50.0%) themselves or by the outsiders.
Corporation homes were the ones took initiative mainly (60.0%) to arrange the prayer meetings by themselves. Meditation (25.0%) and counselling (25.0%) were also arranged by the homes, although the number was comparatively less.

For testing the significance of the difference between infrastructural facilities of homes located in corporation, municipality and panchayat, chi-square analysis was employed on average scores. No significant difference was obtained in the infrastructural facilities of homes, based on their locations.

Similarly the chi square test was employed on average scores with respect to service efficiency individual homes. There observed a significant difference (p<0.05) in the service efficiency of homes located in three regions, indicating the fact that homes in the corporation area render a significantly better service than the homes in panchayat and municipality.

When the infrastructural facilities of the homes were correlated with their service efficiency, it was found that there was significant correlation between these two aspects.

**Phase II**

Majority (47.30%) of the inmates in the present study, belonged to the age group of 70 to 79 years in which 49.70 percent inmates were in panchayat homes. 38.0 percent of the inmates fell under the age group of 60 to 69 years in which a majority (40.0%) were in corporation homes. Only a minority (14.70%) was found in the age group of 80 to 89 years. Majority of this old-old category (22.90%) were
accommodated in municipality homes. Gender wise distribution showed that 80 percent of the inmates were females and the rest (20.00 %) were males.

More than three fourth of the sample (77.00%) were Christians. While Hindus constituted 20.30 percent and Muslims formed only a minority (2.70%). Regarding the type of family, it was observed that majority of the inmates came from nuclear family (60.30%) set up and the rest from joint family (39.70%). The educational background of the elderly subjects brought out the fact that a majority (50.33%) had only primary education followed by illiterates (42.0%). 34.70 percent of the sample were jobless. 29.30 percent and 28.30 percent respectively were working as house maids and casual labourers, prior to joining the old age homes. Only a small percentage (18.70%) of the sample had personal income and majority (81.30%) did not. 58.0 percent of the sample had their own houses before joining the old age homes and 42.0 percent did not.

Majority of the inmates (76.40%) lost their spouses. Only 16.60 percent of the sample had them, but they were not staying with the inmates in old age homes. Majority (63.70%) of the elderly subjects had no sons and 17.20 percent had only one son. A minority (1.90%) had more than three sons. 66.70 percent of them were working as casual labourers and 19.30 percent were jobless. 30.30 percent of the sample had no daughters. 11.30 percent had only one daughter and six percent had two.
In most of the cases (33.70%) the inmates were brought to the old age homes by some religious agencies and 21.30 percent of them by neighbours and friends. The most prominent reason for seeking admission to the old age homes was no means for living and no one to look after (60.70%). Most of them (34.30 %) were staying with their spouse and children before joining the institutions. But they (85.70%) never visited their children or relatives after joining the old age homes.

Age related disabilities were most common among the subjects irrespective of gender. Problems with vision and hearing, difficulties in swallowing and taste recognition were reported by majority. Minor ailments like insomnia (76.30%), fatigue (72.70%), indigestion (73.0%) and constipation (76.30%) were also present among the sample. When classified based on the number of episodes of degenerative health problems, no one was found to have a ‘very good’ health status. Instead majority was rated under ‘poor’ health status.

Chronic obstructive pulmonary disease was the one prevalent in majority of the elderly (79.30%). 78.30 percent had hypertension and 69.70 percent had cataract. 67.0 percent suffered from diabetes. Osteoporosis was found in majority of female elderly (71.70%). Cardiovascular problems were prevalent in 43.70 percent. Osteoarthritis, urinary problems, cervical spondilitis, piles and thyroid were also reported by the elderly.

Functional status as revealed by the Activities of Daily Living (ADL) scale indicated that the majority of the sample were able to perform the daily activities of
living like bathing, dressing, personal grooming, toileting, continence, transferring, walking and eating independently.

Overall health status of the sample was computed based on total number of health problems each subjects had (such as occurrence of age related inabilities, minor ailments, degenerative diseases and functional disabilities). It was observed (32.30%) or that the elderly were mainly suffering from either mild morbidity (32.30%) or moderate morbidity (32.00%).

The psychological status of the sample when studied by the Geriatric Depression Scale revealed that both male as well as female elderly were equally vulnerable to depression, although the percentage of depressed men (55.00%) was comparatively more than that of women. Though chi-square analysis failed to show any significant association between depression status and socio-economic variables there observed a significant association at five percent level between depression profile and functional status, and a highly significant association (at 1% level) with nutritional status.

Nutritional status of the elderly when assessed by Mini Nutrition Assessment scale (MNA). It was observed that nearly half of the subjects (49.30%) were severely malnourished and 48.70 percent were at the risk of malnutrition. Genderwise analysis showed that males (63.30%) were more malnourished than female elderly (45.80%).

Body Mass Index of the elderly showed a higher prevalence of chronic energy deficiency (CED) among females (78.30%) compared to males and the extent of prevalence was higher in 70 to 79 age group. Majority of the male and female
elderly in all the three age categories (60-69 years, 70-79 years and 80-89 years) had Mid Arm Circumference less than 21cm (MAC<21) and Calf Circumference less than 31cm (CC<31) which are indicative of malnutrition.

Food weighment survey conducted for three consecutive days among a sub sample of 30 elderly (15 males and 15 females) showed that the mean intake of all the food items by males and the mean intake except cereals and sugar by females were much lower than the allowance recommended by Pasricha and Thimayamma (2005). Similarly extreme inadequacy was reported in almost all nutrients in both males as well as female subjects. The results on food and nutrient intake of the sample were more or less same, when compared with RDA given by ICMR (2004).

Clinical examination of the sample brought out very clearly the presence of Vitamin A deficiency in the form of xerosis of conjunctiva (18.30% in males and 21.30% in females), anaemia as pale tongue (25.00% in males and 23.30% in females), Vitamin B complex deficiency as Angular stomatitis (15.00% in males and 12.10% in females), Zinc deficiency and flourosis in the form of mottled teeth were also observed. The prevalence of anaemia as indicated by blood haemoglobin level indicated that majority of the inmates had mild (40.00% of males and 53.30% of females) or moderate anaemia (33.30% of males and 26.70% of females).

Also a ‘Performance Index’ was computed for each home based on the scores secured for the availability of infrastructural facilities and the quality of services rendered by the individual homes. The old age homes were then graded as ‘good’, ‘fair’ and ‘poor’ based on the mean scores.
Similarly Health index and Nutritional index of the inmates, who formed the subjects of the study, were also developed based on their overall health status and Nutritional status.

Rank correlation between Institutional Performance index and Health index/Nutritional index of inmates was worked out. There obtained a significant (P<0.01) positive relation indicating the fact that the increase of Institutional Performance index brought about a simultaneous increase in the Health/Nutrition index of the inmates.

Also there observed a significant (P<0.05) positive correlation between nutrition index and health index of inmates indicating that as nutrition index of inmates increased, health index also increased and vice versa.

CONCLUSION

Majority of the institutions for aged were initiated by the Christian missionaries. All the homes had to find their own funds for day to day expenditure as the government grant of Rupees 450 per inmate per month was totally inadequate.

As far as for infrastructural facilities most of the homes (56.25%) rated as ‘fair’ and for service qualities also, the rating was ‘fair’ for majority (81.25%). In total the Performance index of the homes was found to be ‘fair’ in majority (56.25%) of cases.

The overall health status indicated that male elderly were better placed than females. Poor health status was reported by females (34.60%) and males (21.70%). Most of the inmates were depressed and malnourished. The nutrient and food intake were far below the RDA suggested by Pasricha and Thimayamma (2005) and ICMR
(2004). All the elderly disregard of gender suffered from one kind of disease or other. But most of the elderly were functionally independent to perform the daily activities as rated by Activities of Daily Living (ADL) scale.

There observed a highly significant positive association between the Performance index of homes and the Health/Nutrition status of the inmates.

**Further studies recommended:**

Further, long term and indepth research along the following lines can be undertaken to design some specific and sustainable action plans for the care and welfare of the institutionalized elderly in Kerala.

1. Similar studies can be conducted involving all the old age homes in the state to develop a comprehensive database of old age homes and inmates in the state of Kerala.

2. Action research can be undertaken for improving the general health conditions and nutritional status of the elderly in old age homes, by way of nutritional supplementations and awareness building initiatives.

3. Study on the feasibility of having some income generating ventures in old age homes suitable to the interest and expertise of the inmates with a view to provide them psychological and economic security.

4. Indepth study can be conducted on the psychological problems of elderly in oldage homes and its impact on their health and nutritional profile.
5. An evaluation study of the Government policies and programmes for the elderly population in terms of coverage, appropriateness, awareness and extend of utilization of services by the beneficiaries.

**Recommendations:**

Other recommendations emerging out of this study specially directed to administrators and policy makers may be summarised as follows:

1. Health care system in India has already been designed special care for vulnerable groups of population like women and children. Similar arrangements for elderly need to be organized in general hospitals, Public Health Centres etc. to deal with the multiple health problems of aged people.

2. Mobile medical service can be initiated in the Government hospitals. Periodic visit to the old age homes of the respective localities will help to deliver the health care service at the doorstep of such institution.

3. The resources and services of the voluntary agencies and social service organizations like Rotary International, Jaycees etc. can be effectively channelised in an organized manner to provide necessary medical aid to the inmates of old age homes.

However in this context the significance of family environment cannot be overlooked as it is the most apt place for the elderly people to live. Moreover it is their right to be in the family during the difficult period of their life. So a family based approach always acquire tremendous importance. Both Government and non Governmental organizations together with media and educational institutions like
schools and colleges should come forward with viable strategies at various levels to revive the traditional practice of recognising and respecting the age and wisdom. Family especially the youngsters should be empowered to give due respect and dignity to elderly, prevent isolation, loneliness and the feeling of unwantedness through a pragmatic approach; thereby rendering the home environment most conducive for a comfortable, happy and healthy living of the older generation.