CHAPTER -5.
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DISCUSSION.
1) Individual life:

1. Study population - Age grouping was done for every five years starting from 60 years of age. Five groups, thus formed, with last group, 80 years and above. The number after 80 years were so small that they were all included in one group. It will be seen from fig.1. that the octogenarians were least in number and a single nonagenarian was not found.

It has been seen that as age advanced, the number of the persons declined. The first group (60-64 years) had 36.5% of the total. The second group (65-69 years) declined steadily to 30%. The third group (70-74 years) declined to nearly half, the fourth group (75-79 years) to 1/3rd., and the last group (80 + years ) to nearly 1/9th., from the first group.

2. Age and sex group of the study population - It has been seen that the proportions of females in the first two groups, 60-64 and 65-69 years of age, were steady. It declined suddenly in the next two groups (14.3 : 2.7 in 70-74 years group, and 10.5 : 1.5 in 75-79 years group). The proportion then increased in females in the last group of 80+ years.

The reason may be that the females live longer beyond 80 years of age, or more females are dependents beyond 80 years of age or both. As far as the total is concerned, the proportion of females are less than half of males (Males - 68.8%, and females - 31.2%).
In a study conducted at Bombay by Pathak with a total of 449 persons, there were 28.73% males and 13.58% females in 60-64 years group, 24.27% and 5.12% in 65-69 years group, 15.58% and 1.78% in 70-74 years group, 7.35% and 0.45% in 75-79 years group, 2.67% and 0.45% in 80+ years group respectively. Total figure was 78.61% male, and 21.38% females. In a study conducted at Delhi by Ray (Ray. loc.cit.), the males were less (47.4%) than females (52.6%).

The all-India sex ratio in 1971, 1981, and 1991 survey were 930, 934, and 929 respectively. The percentage of males and the percentage of females beyond 60 years of age were 5.9 and 6.0 respectively in 1971 census (Park and Park, loc. cit. p 500-501). In the U.S. among the elderly population, the females predominate. In 1900, older males outnumbered females (M = 102 : F-100). In 1982, there were only 68 males for every 100 females above 65 years of age (Clinical internal medicine in the Aged.loc.cit. p. 4). In West Bengal, the sex ratio in 1991 census was 917/1000 and in 1981 it was 911 f / 1000 males.

In the present study as a particular section of population was taken, and as the industrial society is mobile, the sex ratio or percentage could not be compared.

3. Religion - It has been seen that Hindus constitute the most, 87.50% of our study population, followed by Muslims (10%), Christians (1.17%), Sikhs (1%), Jains (0.16%), and Buddhists, (0.16%).

The all-India religion wise population in 1971 was like
this: Hindus - 82.7%, Muslims - 11.2%, Christians - 2.6%, Sikhs - 1.9%, Buddhists - 0.7%, and Jains - 0.5%, and others were 0.4 percent (Pathak, loc. cit. p. 25). Our study population was nearly similar.

Ray in Delhi (Ray, loc. cit.), found, Hindus - 89.1%, Sikh - 10.2%, Jains - 0.5%, Christians - 0.2%, while Sengupta (loc. cit) found in Calcutta, Hindus - 92.77%, Muslims - 6.73%, and Sikhs - 0.5%.

4. Birth order - It was seen in the present study that the maximum number (68.01%) of the aged persons belong to the first four birth orders. The percentage gradually came down as the birth order increased. The birth order figure gives a rough idea about the fertility rates of the previous generation. Indian women give birth to an average of 6 to 8 children (Park and Park, loc. cit. p. 629). Here it was seen that 95.67% of our study population belonged up to 8th birth order.

In a study with deaf mutes, Singh and Bagchi 106 found that the children of first and second birth orders possessed better level of intelligence as compared to others and was statistically significant. Earlier the birth order, better the level of intelligence.

In another study, Das 108 and the team found the proportion of low birth weight decreased with increasing birth order, and was statistically significant. They quoted the study of Dutta Banik (1967), Aiyar (1969), and Ghosh (1977) who found that the first borne baby had lower birth weight.
Robert Zajone of the university of Michigan believes that greater the number of children in a family and shorter the time between their birth, the lower will be the intelligence of the children, particularly those born later. Judith Black of the department of public health and sociology, university of California, Los Angeles, found that an only child in a family was likely to get three times more of years of schooling than the child from a family of six. This opportunity could play a role in later success in life.\textsuperscript{109}

5. Place of birth - It was seen that 58.17% of our study population was born in the eastern part of India. Next place was occupied by Bangla Desh (24.17%), followed by North India(11.17%) South India (3.00%), West India(1.50%), Central India (1.33%), and Nepal (0.66%).

It was therefore obvious that a lot of people migrated from other parts of the country as well as outside the region. 1991 census showed, the population of W.B(%) 67,982732 (8.06%) as \textsuperscript{___________________________________} India 843,930,861 (Centre Calling.loc.cit. May '91.p. 15).

6. Place where childhood was spent - It was seen that,70.17 percent had spent their childhood in rural areas. About 26.16% spent in urban and semi-urban areas. This also showed that the majority had migrated from other areas.

7. Number of siblings - About 1.67% of our study population had no brothers and 11.33% had no sisters at all.
8. Literacy status - Literacy had been defined as the ability to read and write with understanding (Pathak, loc. cit. p. 32). In this series, it was seen that 21.84% of the senior citizens are illiterate (literate - 78.16%).

In India, 1971 census showed the total literacy rate as 29.46% (Male - 39.45%, Female - 18.72%). Literacy rate in urban area was 52.4%, and in rural area was 23.06% (Park and Park, loc. cit. p. 502). Seal mentioned that urban literacy rate varies from 57 to 74% (Seal, loc. cit. p. 81). The effective literacy rate in 1991 in India was 52.1% (Male - 63.9%, Female - 39.4%). (Centre Calling, May 1991, loc. cit. p. 11-12).

The literacy rate during 1985 was shown as follows: -

India - Male - 57%, Female - 29%, Bangla Desh - Male - 43%, Female - 22%, Nepal - Male - 39%, Female - 12%, and Sri Lanka - Male 91%, Female - 83%.

In 1981-82 survey by the Government of India, in Durgapur, it was shown that the illiterate was 18.51% of the total population, below-primary was 21.76% (our series, 24.5%), primary was 20.47% (our series, 23.5%), middle was 26.32% (our series, 17.33%), matriculate was 9.43% (our series, 5.67%), intermediate was 2.87% (our series, 2.5%), graduate and above was 0.64% (our series, 3.83%). In our series, technical was 0.83%.

The state of West Bengal had a literacy rate of 57.72% as per 1991 census (Report, The Statesman, 27 - 3 - 1991, loc. cit p, 3) which was 48.64% in 1981. Ray (loc. cit.) in Delhi found in his study, 29.8% illiterate, and Sengupta (loc. cit.), found
in Calcutta, 22.69%, while Pathak in Bombay (loc. cit.), found the rate as low as 4.2%.

9. Nature of occupation - It was revealed that 32% of the total aged population was having some or other occupation. This indicated that, even old people, if sufficient facilities were given, can do some fruitful work and contribute to the society. Even among them, 27.33% were engaged in household activity, that can be measured in terms of money.

Sengupta (loc. cit.), in a study at Calcutta, found the retired - 22.19%, Businessman - 21.94%, Daily labour - 21.20%, Peon - 12.22%, Clerk - 7.73%, and other as 14.72%. In his study more aged people were engaged in some or other work, most probably due to lower age group was included in it (55 years onwards).

As far as past occupation was concerned, 50% was factory worker. Non factory worker was 12.34% followed by Agriculture worker (3.83%), Business (1.50%), and unorganised worker (1.67%) Household work engaged 28.83%, and Nil occupation group having 1.83%.

Past occupation as studied by Pathak (loc. cit. p.33), showed that Nil-occupation was having 1.60%, and among males only. Business occupied 17.9% male, and 2% female. Farming engaged 2.5% males only. Housewife was 81.3% among females.

Therefore, it was seen that Bombay engaged more old people in business than this region. As far as Indian scene is concerned, it is seen that as per 1981 census, the percentage of
total working population was 36.77% (Male - 52.65%, Female - 19.77%). (India 1990. loc. cit. p. 161-2).

10. Nature and pattern of addiction - In this study it was seen that 47.5% of the aged were non addicted, and 52.5% were addicted. Pathak (loc. cit. p. 50) found in Bombay that 50% did not smoke, drink, or even take pan-betel leaves. 14% of his subjects used pan (9.84% in this series), 30% tobacco smoking (in our series, 29.33%), 4% tobacco as snuff (2.33% in our series as tobacco snuff or chewing). In our series 45.83% was regular in addiction.

On the other hand, Ray (loc. cit.), found in Delhi, 35.5% addicted, and 64.5% non addicted. Smoking was done by 21.8%, Betel taking by 2.2%, Alcohol by 12.9% (in our series - 4.83%), Tobacco chewing by 12.9% (in our series - 2.33%), and others as 1.2% (in our series - 0.83%). None was opium addicted (in our series - 0.50%). Sengupta (loc. cit.), in a study at Calcutta, found 75.31% as addicted, and 24.69% as non addicted. 41.65% were used to smoking, 1.24% to Ganja (in our series, 1.5%), 4.49 percent to Alcohol and Smoking, 17.21% to tobacco chewing, 2.74% to pan, and 7.98% to mixed addiction (in our series - 7.17%).

The Government of India survey (working class survey, Durgapur, 1981-82, loc. cit.) showed the average quantity consumption per family per month in Durgapur as follows :- Pan leaf - 15.25 number, finished pan - 10.82 number, Supari - 23.43 gm., Lime - 7.76 gm., Katha - 2.48 gm., Bidi - 237 number, cigarette - 101.95 number, Chewing tobacco - 22.81 gm., Snuff - 1.57 gm.,

The average expenditure per family per month on pan, supari etc. was 2.98 Rs., on tobacco and tobacco products was Rs. 17.95 and for alcoholic beverages was Rs. 2.69. Total was Rs. 23.62 out of average total of consumption expenditure of Rs. 843.00.

Dayal 113 and his team while studying 57518 textile mill workers over 35 years of age found 2637 (4.60%) had pan - supari chewing habit. Among the pre-cancerous lesions, only leucopla-kia, lichen planus and submucous fibrosis could be associated with this habit in pure form.

Dr. Brian Wells 114 mentioned that consumption of alcohol was categorised into four groups - normal, recreational, problem, and dependent drinking habits. In our series, 4.83% was seen having used alcohol. A few of them taking alcohol out of custom or tradition.

11. Individual monthly income - It was seen that 68% of our study population did not have any individual income. 11.33% had the income of Rs. 101 - 300 per month. 51 persons (8.5%) had the income of Rs. 501 to more than 900 per month and was considered as independent earner. Others who were dependent earners numbering 139 (23.17%) had monthly income of Rs. less than 100 to Rs. 500. Two persons could not or did not give any information about earning figure but was originally considered as dependent earner.
12. Pension - Only 0.67% of our study population got some pension and the average pension per month was Rs. 46.75 only.

13. Socio-economic dependency - The rate appeared to be high among our study population. Only 8.50% was independent. The rest, 91.50% were either dependent earner or totally dependent.

To find out the socio-economic status among the aged persons is difficult. No classification, either occupational, or social, as put forward by Register General of England or by Kuppuswamy (Park and Park, loc. cit. p. 80-81) were suitable. Classification by Prasad was also of no use.

Therefore, income and housing were considered as the basis to measure dependency. Those who had sufficient income to maintain himself and his/her dependents and had means for housing (own or rented as the case may be) were considered as independents.

Out of 91.50% among the aged study population, 78.67% were dependent on son and 5% were dependent on daughter. 2.50% were dependent on spouse (husband or wife). Dependents on wife were in 60 - 64 years age group. 2.34% and 2% were dependents on brother and grand son/daughter respectively. The other groups were very small. Socio-economic dependency therefore, varied widely in this belt. Sengupta (loc. cit.) in Calcutta found among the dependents, 78.85% dependent on son, 4.23% on daughter, 8.46% on wife, 1.41% each on brother and son in law, 2.82% on uncle and 2.81% on cousin.

In a study at Bombay, Pathak (loc. cit. p. 33) found 5.1% of
men and 34% of women were dependent economically on their children and 52.2% of women were dependent on husband. At Delhi, Ray (Ray. loc.cit.) found 41.7% fully dependent, and at Calcutta, Sengupta (loc.cit.) found 17.70% dependent, 20.95% dependent earner, and 61.33% independent earner.

14. Relationship with the head of the household - It was seen that maximum number of the study population was head of the household themselves (74.67%). Among other groups, 19.83% was mostly females. Only in 5.50% of cases the head of the household was either son or daughter or grandson/daughter, or brother/sister. Sengupta (loc.cit.) in a study at Calcutta, had somewhat similar observation. 98.01% was head of the household in his series. In the U.S. in 1977 only 20% elderly persons were head of the household as per the Department of Health and Human Services (D H S) publication, Washington D C (Clinical internal medicine in the Aged. loc.cit. p. 8).

Therefore, it was seen that old persons were considered as head of the household in Indian culture irrespective of their socio-economic dependency.

15. Status in the household - This was noted earlier. In this study it was seen that 8.50% of the aged were independent earner, 23.50% were dependent earner and 68% were totally dependent.

16. Clothing - Among our study population, 83.50% had adequate cloth to use and 15.67% was having partially adequate cloth. Only 0.83% had inadequate cloth. Large group(66.83%)used
mixed fibre. Natural fibre was being used by 32.67%. Only 0.50% used man-made fibre alone.

In this series it was seen that 16.50% was having partially inadequate and inadequate cloth. Our country was having per capita consumption of 16.60 metres of cloth at present. Previously, it was 14 metres for a long time. The preference of Indian consumer is blended and pure synthetic fibre.\textsuperscript{116}

It was also seen that large group (66.83%) used mixed fibre. Maitra \textsuperscript{117} found that share of man-made fibre had increased from 17.96\% to 23.25\% during 1983 - 84 to 1989 - 90 and the share of cotton had gone down to 74.90\% from 82\% during the same period in our country.

17. Dietary habit – In this series, 37.33\% was vegetarian and 62.67\% was non-vegetarian. It was seen that a good number of old persons become vegetarian in later part of life, mostly due to religious reason. Hindu widows are generally converted vegetarian due to custom. Ray (loc.cit.) in Delhi, found 42\% vegetarian, and 58\% non-vegetarian.

Appetite was good in 17\% and moderate in 61.67\%. About 1/5 th., or 21.33\% had not-so-good appetite. Bowel habit was regular in 40.17\%.

It was also seen that only 0.67\% took meal/ tiffin once a day. 18.00\%, twice a day. Majority (42.67\%) took three times a day. 28.16\%, four times, and 10.50\% take whenever available.

By tradition, in our country, more older people especially women and widows take less number of times the meal a day. Dr.
Mansharamani advised three meals a day to the elderly especially to hypertensives.

It was seen that 38.66% people take meal/tiffin four times and whenever available. They do not abide by Hippocratic aphorism - "old men have little warmth and they need little food too much only extinguishes the warmth they have".

As far as non alcoholic beverages are concerned, maximum persons take tea (76.17%), followed by coffee (0.83%). 7.17% take both. 4% take sarbat and only 0.16% take fruit juice. 11.67 percent did not take any beverage.

Government of India survey, 1981 - 82 in Durgapur (loc.cit p. 76 and 119) pointed out the consumption of 0.39 kg. of tea leaf per month per family in this area. Average expenditure per month per family on tea leaf was Rs. 6.95, on coffee powder was Rs. 0.07, coca products was Rs. 0.60, squashes and syrup was Rs. 0.17, and for total non alcoholic beverages was Rs. 7.79.

18. Personal hygiene - 67.67% of our study population took regular daily bath. 21.83% took regular twice or more times a day. It was seen that only 5 persons (0.83%) did not take any bath regularly.

It was also seen that 6.33% did not use soap and 2.33% did not use any oil. 74.50% did not use tooth brush, tooth powder etc. Most of them used artificial dentures. In this series it was found that 31% used either partial or complete artificial dentures.
19. Physical activity - In this series the largest group (34.83%) were previously engaged with swimming or cycling or both. Outdoor games and play engaged 10.67% of the old, 3.84% was engaged with yoga-bayam, 2.17% were engaged with run or walk and 37.50% had no such activity.

To take into consideration about past physical activity we have counted those who used to do these regularly. It was found that almost all in female group were not engaged with any such activity regularly.

As far as present physical activity is concerned, 80% had no such activity. Only 3 persons (0.50%) were engaged with outdoor games and play and 41 persons, mostly males (6.83%) were engaged with yoga-bayam. The largest group of 49 persons (8.17%) practice run or walk regularly, and cycling was done by 25 persons (4.17%). The practice of regular walk especially in the morning was in practice with the people, old and young alike, in Durgapur.

In the series studied by Pathak (loc.cit. p. 43 and 35) in Bombay, it was found that 12.80% had taken part in sports and games in the past and 16.90% had done asanas or exercises. No females played any games or had taken part in any athletics in the past. At present, 28.60% was taking regular exercises or walk. Ray (loc.cit.) found in Delhi 16.80% of the senior citizens take part in physical activity of which walking was 15.6%, exercise - 1%, and yoga - 0.2%.

In our series, 20% was at present engaged in such work and
activity, and 80% had no regular physical activity.

20. Mobility - In this study, it was found that 98.83% of the subjects moved freely. Stick for movement was being used by 4 persons (0.67%), and human help was required by only 3 persons (0.50%).

To assess the persons ability to move, it was observed whether the person can move outside his/her house. Indoor movement had not been considered.

It was seen from the table 120 that 8 persons were disabled due to hemiplagia and one person due to parkinsonism. The person with parkinsons diseases and two persons suffering from hemiplagia take human help and 4 persons from hemiplagia group take stick for mobility. Rest two persons can move. They had been termed as completely disabled in terms of disability benefit they get.

Mulley 120 mentioned that some elderly people use sticks to proclaim their frailty. Some need to carry them as defensive weapon.

21. Vaccination status - In this study, it was seen that the vaccination status of the aged persons was very poor. Only 2.33% had taken vaccination during later period of life.

In the U.S.A. it had been pointed out that providers often miss opportunities to immunise adults during routine contacts in offices, clinics and hospitals and such opportunities can be used to review the immunisation status of adult patients.
Recommendations for vaccination from health care providers markedly influenced the decision to be vaccinated even among those with negative attitudes towards immunisation, as various survey results showed.\textsuperscript{121}

In our situation, we have hardly any vaccination to be given to the elderly groups except tetanus toxoid. This was only counted in our study.

22. Aids and appliances - It was seen that only 8.50\% did not require any aids or appliances. 5\% of the aged did not possess any aid even if it was required and the rest, 86.50\% possess some aids and appliances. Visual aids were being used by largest number of people (50.50\%), followed by artificial dentures (32.67\%). Combinations of different aids used by 4\% of people. 1.5\% used hearing aids. Table 120 showed that there were 5 persons who were completely deaf and did not use hearing aids as those were of no use to them.

In this series, the persons started losing their teeth by 47/48 years of age. Pathak observed in his study (Pathak, loc. cit. p.134) that by 60 years of age, more than 40\% (42.2\% male, 33.3\% female) had lost all teeth. 15.6\% had accepted partial dentures in his series. Eleanor A. Young (Medical Clinic of North America loc. cit. p.301) mentioned quoting various authors that by 65 years of age 50\% Americans loose all their teeth.

George in a study, among the elderly, found that many aids were not used by elders and many were faulty. It was found that one in three, hearing aids and walking sticks were not used.
and one in six, hearing aids, and one in two, walking sticks were faulty. Walking sticks were checked for lengths and considered correct if there was less than 5 cm. difference from the wrist crease to ground measurement and the state of shaft and ferrule. In the study, aid was defined as any item designed to help the functional ability and the aids that are fixtures in the home were adaptations.\(^{122}\)

In our study we did not count the adaptations as defined by George and his team. Walking sticks as used by our subjects were not checked as George had done. Out of 4 persons who used walking sticks in our series, only one had purchased it, and the others were home made modifications. But all were in good conditions and all used them regularly. Sainsbury and Mulley in a survey of sticks used by the elderly people found that two thirds of the sticks were too long.\(^{123}\)

In our series, it was seen that out of 303 persons having visual aids, 260 used them regularly and three were found faulty. In case of dentures, out of 196 persons who possess, 174 used regularly and 6 were found faulty.

\(^{23}\) Medicines and drugs used - Medicines used by chronic ill patients numbering 451 were studied. It was found that four drugs were used by 34.36\% of the old, followed by 24.61\% using 3 drugs, 10.42\% using 2 drugs. Five drugs were used by 17.30\%. Three to five drugs were used by 76.27\% of the old people.

It had been noted that elderly patients were frequently treated with multidrug regimen which increased the incidence of
adverse drug reactions (A.D.R.). (The Medical Cl. of N. America. loc. cit. p.336). It was also mentioned by Williamson 124 that 10% of admissions to geriatrics wards were due to iatrogenic diseases caused by drugs.

Mehta and Chandra 125 mentioned a survey report of Australian consumers association which revealed that many elderly people were taking several drugs at a time and even some were using 13 different drugs a day. Goldberg, P.B. and Roberts, J. mentioned (The Medical Cl. of N. America. loc. cit. p.315) quoting Lamy, P.R., that elderly patients receive more drugs per capita than younger groups.

The committee on safety of medicine (C S M) in U K (United Kingdom) pointed out that in 1982 prescriptions per head of elderly patients were 15.9 in comparison to 5.2 per head for younger adults. 126

Artigou 127 mentioned that epidemiological studies showed, the drug intake becomes more after 60 years of age which increased the risk of drug allergy. In a survey, Law and Chalmers found 34% of the patients over 75 were using 3 to 4 number of drugs daily. 128

Ghosh and his team 129 in a study found the use of multiple drugs (1-6) per prescription. 16.4% for one drug, 25.1% for two drugs, 31.9% for three drugs, 12.8% for four, 8.5% for five, and 5.3% for six drugs. He also mentioned E.Herumink (1975), and Rapoport (1976) who noticed that patient's demand also influenced doctor's prescription habit.
Prescription habit to prescribe more drugs may also be due to multiple pathology in the elderly.\textsuperscript{130} The study by Ghosh among general population and our study among the elderly showed that polypharmacy is also common in our country.

24. Sleep - As age advances, the sleep decreases. In this series it was seen that 25.33\% of people had not-so-good sleep. 50\% of old people had good night-sleep, and 24.5\% had good sleep by both day and night.

It had been noted by G.W.Paulson (The Medical Cl. of North America. loc.cit. p.348) that elderly people doze more frequently but never feel refreshed. Prolonged, intense sleep is the privilege of the young.

Pathak observed in his study (Pathak, loc.cit. p.170) with the elderly group that 40\% of his subjects were not happy with the sleep they got.

Rozzini\textsuperscript{131} from the centre for the study of the elderly condition, Brescia, Italy, mentioned that their study data showed, 38\% men and 54\% women suffered from sleep disorder. They also found that sleep disorder were often related to loss of life satisfaction. Insomnia may not be a necessary consequence of aging itself.

25. Mental status - In our series, 15.83\% had the feeling of isolation. 2.5\% were discontented and 2.83\% were disconnected with real life, and 2.5\% had other feelings. The bulk of the old people numbering about 458 (76.34\%) were contented and (+) hale and hearty (38.17\% + 38.17\%). This indicates that irres-
pective of various troubles of life, Indians, are in general, happy. However, Hodkinson found that many depressed old persons put up a brave front while the doctor visited, and appear cheerful superficially.

Merriman (loc.cit. p.130) quoted Reichard who categorised the elderly group's personalities into the following:

1) Constructive man - optimistic, future oriented, and therefore popular with family and friends. 2) Dependent man - passive, "rocking chair" man, socially acceptable but tends to be passive and dependent. 3) Emotionally over controlled - habit bound, conventional. He is afraid of threatened dependency and determined to keep going. 4) Hostile, angry man - blames other persons for his failures. He had usually an unstable work record and afraid of death. He envies young people. 5) Self hating man - turns his aggressiveness towards himself. He sees death as a happy release from his problems.

Reichard's study, it had been mentioned, carried out in the U.S.A. and was found to apply also in U.K. and can probably be seen in other cultures.

For this reason, we tried to categorised our study population (Table - 33) and found 4.83% in category 1, 59.67% in category 2, 11.83% in category 3, 5% in category 4, and 18.67% in category 5. Category 4 was similar to the persons with mental status of discontented and others (Table - 32). Category 5 was similar to those having feeling of isolation and disconnected with real life. And the persons who were contented and (+) hale...
and hearty were categorised in 1, 2, and 3 of Reichard's category.

With aging there are alterations of certain enzymes e.g., increase of Mono Amino Oxidase (MAO), decrease of nor-epinephrine in brain and hence the associated alterations in mood, affect, behaviour, and memory along with other changes (Clinical internal medicine in the Aged. loc. cit. Ch.13. p.222-225.).

26. Social and leisure-time activity - These were counted in terms of outdoor activities. Several such activities were listed and it was seen that 83% had no such activity at all. Among those who had, were engaged in financial activity (6.17%), socio-political activity (4.67%), and socio-religious activity (4.16%), and medico-social activity (0.33%).

In a study in Delhi, Taneja and Nalwa found 33.64% had religious association, 27.57% had social service, and 22.9% had club/association among 58-88 years age group who retired from government service.

27. Consultancy during sickness - As far as consultancy during sickness was concerned, it was found that 98.83% used the medical facilities offered by the company (Durgapur steel plant.). 4.83% used it as the only means and 94% used it along with outside medical service whenever necessary and as per their faith. Various systems of medical care from outside were utilised which include Homoeopathy, Home medicine, Vaidya or Hakim, Religious offerings, Madras or Chandsi treatment, and Semi-religious/Semi-witchcraft. Non users of company-medical
facilities consisted of 1.17% of the total. Out of seven, it was seen that 3 persons (0.50%) did not use modern medicine (Allopathic system of medicine).

It was seen from the tables 36 and 37 that homoeopathic system of medicine was being used by 130 (21.67%) persons and only 2 persons (0.33%) consult Vaidya and Hakim. Religious offer was made by the same number of people (0.33%). In this area, the company-medical facilities are more than average when 98.83% had utilise the same.

Seal (Seal, loc.cit. p. 305) mentioned that response to the sickness vary greatly according to the cultural standard and economic conditions. In first condition, the service of a doctor is not sought for the illness. In the second condition, the service of a quack or a practitioner of homoeopathy or auurvedic medicine is sought and in the third condition, the help of hospital is sought.

Ramesh and Hyma mentioned that indigenous system of medicine is used by very few. In 1969 the Government of India set up a central council of research in Indian medicine and homoeopathy with four sub councils: - 

Tayler mentioned that organised health services in India provide only 10% of the medical care. Another 10% is provided by qualified physicians and the balance is split between home medical care and the indigenous practitioners.
Deoki Nandan and his team found that the majority of people continue to rely on traditional practitioners and faith healers, near Agra, U.P.

From a consumer study in Britain it was seen that 45% did not use anything and 7% did not know what to do and 9% used a home remedy when they were sick. Ray (Ray, loc.cit.) in Delhi found 20.7% did nothing, 15.5% used home medicines (our series - 5.17%), and 1.2% used religious offerings (our series - 1.63%), while Sengupta (loc.cit.) in Calcutta found 6% did nothing when they were sick.

28. Problems faced - Old people face a number of problems. Yet, it was seen in our study that 3 persons (0.50%) had no problems at all. Majority faced the financial problem (35.33%), followed by accommodation problem (23.33%), future security - (15.50%), difficulty to pass time (6.67%), adjustment with younger generation (6.83%), and settlement of children (4.17%) etc.

Pathak (loc.cit. p.34) in his study found that 72% of the old people had financial problems, 30% had difficulty to pass time, 29% had the problem of health or future security, 19% had the problem of adjustment between generations and 13% had no proper accommodation. Tata Institute of social science survey - 27, pointed out that the problems of the old especially in retired persons as follows : - financial - 40.88%, leisure hour utilisation - 27.35%, worries of family and future - 10.88%, health - 10.25%, dependence, isolation, and generation gap - 7.06%, and accommodation - 3.52%.
As the old persons in our series had more problems each, we had taken into consideration the most important problem they think best and that had been verified by different questions. In this way, in our series, we got 28 persons (4.67%) having combined problems. They all belong to fourth (75-79 years age group) and fifth group (80+ years and above age).

Holloway mentioned that the elderly today were brought up in the late Victorian era. They sometimes carry over the ideas and attitudes of previous or earlier generations, which were no longer applicable to the present social context. This may be one of the reasons of maladjustment with younger generations and the present society at large. Furthermore, Merriman mentioned that the generation gap for today's elderly is widening and in some countries they are unable to communicate with their grand children as they do not speak the same language (Merriman, Anne., loc.cit. p. 130).

29. Life satisfaction - This is a subjective evaluation. It is helpful to note before this evaluation that, Indian soil, tradition, and teaching make us reconciled in diverse vicissitudes of life (Pathak, loc.cit. p. 168). This might be one of the reasons that majority in our series (93.16%) were more or less satisfied with life. Not satisfied and unsatisfied group joined together consisted of 2.67% only. Ray (Ray, loc.cit.) in a study found 4.7% as unhappy, somewhat low percentage of unhappiness among the elderly group of Delhi.

It had been pointed out by Gurudoss and Lakshminarayanan.
that men who lived with their spouses have more life satisfaction than those who lost their wives and this was found statistically significant. Widowhood had been conceptualised as "role less role". Discontinuity in marital status seems to have disruptive consequences than continuity.

30. Elder abuse - Elder abuse is there in our society. In this study it was found that 83.50% had not been abused. Financial abuse was maximum (9.66%), followed by mental abuse (5.67%), physical abuse (0.67%), and combined abuse (0.50%). Ray (Ray, loc. cit.) found 4.7% indifferently treated and 0.50% of females reported negligency, in a group of senior citizens of Delhi.

There are several categories of abuse as pointed out by various authors: - 1. Physical abuse (being pushed, grabbed, slapped, hit with a weapon etc.). 2. Verbal abuse (chronic verbal aggression, repeated insult, threats, at least 10 times in the preceding year). 3. Neglect (deprivation of some assistance, that the elderly persons needed). 4. Financial abuse. 5. Sexual abuse. 6. Infantilisation, and 7. Abandonment. 140

Amnesty International 141, however, in its first major report on women victims of human rights violations, submitted to the U.N. commission on the status of women, on international women's day, mentioned that women in 40 countries (India included for rape of women, or sexual abuse by police) were victims, who were babies, teenagers, pregnant mothers and women in their sixties.

American Medical Association 142 in 1985 published a model
"elderly abuse reporting act", where it was defined, as an act or omission which results in harm or threatened harm to the health or welfare of an elderly person. While, Mervin Eastman, director of Ealing social services suggested at British geriatric society that abuse is "misuse of power resulting in a reduction of quality of an elderly personal life".\textsuperscript{143}

Washington state medical association classified the elder abuse as:- a) physical and sexual abuse, b) psychological abuse, c) exploitation, d) medical abuse, and e) neglect. While Bexley social services, U.K. identified eight types:- a) nutritional deprivation, b) maladministration of drugs, c) sexual, d) financial, e) verbal, f) failure to attend to health needs, g) isolation or confinement, and h) assault.\textsuperscript{144}

American studies found that the most common form of elder abuse is passive neglect. The abuse of elderly take place in institutional settings also. Both American and U.K. studies found that elder abuse take place at all socio-economic level and social class.

Approximately 10% of the Americans over 65 years of age are abused as found by the council of scientific affairs of A.M.A., Chicago. Karl Pillamer\textsuperscript{144} found in Boston metropolitan area of U.S.A., the prevalence rate of elder abuse as 3.2%. In our country, in Madurai District, a study made by Prof. A.Venkoba Rao showed that among the elderly, who live with their families, more than a quarter experienced neglect.\textsuperscript{107}

31. Elderly offenders - In our series not a single oldie...
as offender was available. Enquiry was made about the offence:—
a) against the society, b) against the family, c) against any
person of same or other sex, and d) against self.

Suicide was considered as offence against self. The rate in
general, is high among the aged. It was suggested by C.A. Shamoin
(The Medical Cl. of N. America, p. 367, loc. cit.) that every elderly
patient should be directly asked about passive and active
suicidal ideation.

Don Blazer, after studying a large number of people,
mentioned that, increasing social stress and alienation may in-
crease the number of suicides over the next fourty years among
the elderly people. The fact that present-day elderly group have
less number of children to care them have increased the risk.

Though suicide is considered offence against self by the
traditional society and by almost all religion, yet a lot of de-
mand from many corners have put up to declare valid the right to
die, when, recently, Bombay high court had given a verdict by
which this demand got a shot in the arm. The court mentioned,
that a suicide may be egotistic, altruistic, or anomie, that is
caused by society's failure to regulate an individual's beh-
aviour.

It is to be noted that U.K. had abolished suicide as a cri-
me in 1961. Soviet Union (Russia at present) does not have any
law with penalties on the subject. Dr. Joane Lynn, a geriatri-
cian, and the principal author of U.S. president's commission
for the study of ethical problems in medicine and biomedical and
behavioural research had observed that an adult person of sound mind should have complete authority over his or her own body. This includes the right to die.

Since the last phase of life is full of losses like, loss of spouse, close friends, loss of mobility, loss of earning capacity, loss of physical and financial independence etc., the offence against any of the above mentioned points may be committed by any person in the elderly group. In our series, fortunately, there was none. J.T. Freeman reported as quoted by Pathak (Pathak, loc.cit. p.160) that 8% of sex offenders in the west were over the age of 60 years. Palmore 223 mentioned that senior citizens are better citizens. They are reliable, and commit fewer crimes. Our experience from this study is similar.

ii) Conjugal life:

32. Marital status - It was seen that 1.50% of the aged study population remained unmarried, and 98.50% were married. 32.67% had lost their partner. 91.67% was married for one time only. 6.50% was married twice, and 0.33% for thrice.

In the series studied by Pathak (loc.cit.p.157), it was seen that 2% of the elderly were unmarried. 11.6% was married twice and 1% for three times. Ray (loc.cit.) found in Delhi, 0.8% bachelor among the elderly elderly group, and Sengupta(loc cit.) found in Calcutta, 4.74% unmarried among elderly males.

33. Age of marriage and how arranged - In our series, 25.83 percent was married at or below 15 years of age. Females were
mainly in this group. From 16 - 25 years of age another 40% had joined them. 32.67% was married at or over 26 years of age. Mostly males (2, females) were in this group. It was also seen that marriage was arranged by self in case of 4.33% only. In the case where arranged in combined way, as in 8 cases (1.33%), it was seen that either the marriage was pre-arranged or initially arranged by self. Census data revealed that the average age of marriage in India was 13 years prior to 1951 among females (Park and Park, loc.cit. p. 503).

According to a report (The Statesman, Ed., 13-7-1985), the UNICEF reported in 1985 that in one third of India's districts the mean age of marriage of women was still below 15 years. Most of these districts were in Bihar, U P., M P., and Rajasthan.147

In another report it was seen that among married in 1981, 2.6% males and 6.6% females were married within 10 - 14 years of age and 12% males and 43.5% females were married within 15 - 19 years of age.148

34. Age difference between couples - In our series the age difference between couples showed that 8.66% had the difference of 12 years onwards. Majority had the difference of 6-11 years (50.67%), and 39.17% had the difference upto 5 years. There was no female more aged than her spouse.

In the series studied by Pathak (Pathak, loc.cit.) there was 3 years on an average the age difference between the couples and in no case the wife was older than the husband.

35. Type of marriage - Exogamous marriage was common (93%).
Endogamy is mostly prevailing among the muslims and certain hindus of south India. In our series, the muslims constitute 10.00% and another 3% came from the south. Yet, only 5.5% had endogamous marriage.

36. Spouse living or dead - The spouse living group in our series constitute 65.83% of the aged. The wife living in case of 67.55% of males, and husband living in case of 62.03% of females indicating more females became partnerless than males.

Pathak, in Bombay, observed the similar event. 30.2% females in his series were widows and 14% males were widowers. Ray, in Delhi, had the similar experience, when in his series 23.3% were widow, and 16.1% were widower. Sengupta, however, found in Calcutta, 14.46% widowers in his series among the aged males.

37. Health of the spouse if living - Health of the spouse was good in case of 44.17% of the old. Considering indifferent health as sick, it may be said that 14.67% and 7% i.e. a total of 21.67% was sick.

38. Cause of death of spouse if dead - It was seen that 2% of the aged people had unnatural death of their spouse.

39. Duration of conjugal life - It was seen that the conjugal life was minimum, upto 9 years in case of 2.83% of the aged. Only one case was there in this group when the spouse was living. This solitary case, now 61 years, male, married at the age of 52 the difference of age being 16 years with the wife. 36.67% had the conjugal life from 30 - 39 years and 31.67% had 40 years or more. If joined together, it will be seen that 68.34% had
least 30 years of conjugal life.

40. Pattern of conjugal life - As far as the pattern of conjugal life was concerned, it was seen that 30.5% had uninterrupted and 68% had interrupted conjugal life. It had been seen during the study that a good number of people, especially from U.P., Bihar, and Orrissa, had very early marriage, but actual conjugal life started a few years later. This social custom, with or without any religious sanctions interrupted the conjugal life of the couple which was counted in the study. This interruption started at the beginning of the married life. A few couple had interruption at the middle of married life, when due to some reason the husband had to live separately. The third group had interruption in the terminal part of their married life due to the death of the spouse. Thus, only 183 cases (30.50 percent) had uninterrupted married life. In this study, when the spouse was living, a period of one year separation was counted as interruption.

41. Sex life and Practices - In this series 79 persons, or 13.17%, practiced sex act and gave informations. Males having 16.71% and females having 5.35%. In an interesting observation made in Great Britain by "Minerva" with the doctors aged, 85 years or more that those who gave information was sexually active into their late 70's or later. Serious ill health was not much among the group containing 15 doctors, three had prostatectomy and one had hysterectomy.

One myth of aging is that sexual activity does not norma-
lly occur among the elderly. In the past decade, studies regarding sexual interest and practices among the elderly indicate that for many, sex remains an important part of expressing intimacy (Clinical internal medicine in the Aged, loc.cit. Ch.18 p. 305 - 316).

42. Relation with sex activity partner - Out of 79 senior citizens who practiced sex act and gave information, 66(or, 83.5 percent of the practicing group) practiced with spouse alone. All the females were in this group. Six persons, all males(7.6% of the practicing group) used non-spouse only as their partner. Four persons, all males (5.1%) used both, spouse and nonspouse. 3 persons, all males (3.8%) did not give the informations about the partner but it was assumed that they were non-spouse.

It is very difficult to enquire about the sex activity especially with the aged. Due permission was taken from them, therefore. If they agreed, only then the question was asked. Sometimes, the enquiry was made in a written slip, mostly with women. Kellett observed that as sexual behaviour is private and the patients may be reluctant to giveinformation, the doctor must take initiative to enquire.

Pathak (loc.cit. p. 158 - 160) also observed that it was very difficult to enquire about extra marital relations. In his series it was seen that only 6% men admitted to have the same. The median age of termination of coitus in men was 69 years, and in females, 60 years.

43. Number of children - It was seen in this study that 17
or 2.83% had no child. 5.5% had one child. 22.67% had 3 children, 22.50% had 2 children, and 20.83% had 4 children. Together, 66% had 2 - 4 children.

Average number of children per person having child in this series was 3.63. Pathak (loc.cit. p. 157) found average 4.03 children per person and 3% was childless in his series.

Women in Asia Pacific region had an average of more than 3 children, but in 8 countries, India, Bangla Desh, Iran, Afghani-sthan, Nepal, Pakistan, The Phillipines, and Vietnam the number ranged from four to seven.

44. Age at first and last child - It was seen that 18.34% had their first child by 15 years of age, and only 7% had the same beyond 30 years of age. It was also seen that only one person (0.17%) had last child beyond the age of 60 years and the majority (70%) had last child by 45 years of age. Pathak (loc.cit. p. 223) found in his series a man got child at higher age of 61 years and a woman at 53 years.


45. People having no child - There were 17 persons who had no child at all. Out of them 9 were unmarried (3 males, and 6 females). 8 persons (1.33%), 4 from each sex had no child even though they were married. The 8 childless couples took the whole
thing easily, when they adopted a male child each from either brother or from sister. Pathak (loc.cit. p.157) found 3% child less among the senior citizens.

It had been pointed out that infertility affects about 8% of couples of reproductive age, or about 50 - 80 million people world wide. 152

46. Menarche and menopause - These are two crucial phases in life of a female. It was seen that 3.21% of females had menarche within 10 years of age. Majority (70.59%) had within 11 - 15 years of age. Only 8.02% had beyond 18 years of age.

A woman was considered post menopausal when she had a complete cessation of menstruation for 12 months or more, the uterus remaining intact. In this series, 3.21% had menopause at or before 40 years of age. Majority (57.75%) had it within 41 - 45 years, followed by 37.43% within 46 - 50 years. Only 1.16% had it beyond 50 years of age. In the series studied by Pathak (Pathak, loc.cit. p.159), the median age for menopause was 47 years.

Chacraborty and Sinha 153 in their study quoted Das and Curjel who found the average age of menarche in parts of Bengal as 14 ± 0.04 years in 1892 and 13.62 ± 0.11 years in 1920 respectively. It was also pointed out, that Flushman had shown the average age of menarche in the U.S.A. as 14.2 in 1901 and 13.6 in 1921, 13.1 in 1932, and 12.9 in 1948.

Balghir 154 in a study in Punjab found the average ages of menarche and menopause among Sikligars (nomadic) as 14.27 and 43.71 years respectively. He quoted various authors who studied

Randhawa 155 found the mean age of menopause of 500 women of H.P. as 43.55 years with a range of 38 - 52 years. Rural or urban living or parity had no effect on menopause. Women of higher socio-economic status had later onset of menopause. The result obtained by various authors was also quoted. Frommer (1964) - U.K. - 50.20 years, Mc Kinley (1972) - U.K. - 50.78 years, Benjamin (1960) - South African white women - 59.20 years, Mac- Mohon and Worchester (1968) - U.S. - 47.7 years, Burch and Gunj (1967) - Newzeland - 50 years.

47. Pregnancy and abortion - It was seen that the largest group (16.57%) had 5 pregnancies in this series. Together, 74.92 percent had 2 - 6 pregnancies. 75.92% of the females had no abortions at all and 18.72% had abortions upto 3.

It is to be noted that the abortion that took place, was abortion itself (spontaneous) and not voluntary abortions for family planning etc. It was also taken into consideration that the history of abortion was not fully given by all women.

It had been reported that in India abortion rate was 11 per 100 live births (Park and Park, loc.cit. p. 522). Assuming that during the past years when our subjects were at reproductive age period, the abortion rate was higher, when we got in our series only 35 cases who had abortion (total abortion was 52), the
matter was under-reported. Our subjects, either did not want to
tell the exact number of abortions they had or forgot the exact
number.

48. Age at first pregnancy - It was found that the majority
(47.59%) had first pregnancy within 16 - 20 years of age, follo­
wed by 28.78% having at 21 - 25 years of age. 2.67% had the
first pregnancy beyond 30 years of age.

iii) Family life :

49. Nature of family - Joint family was predominant in our
series (78.67%), contrary to the fact or idea that urbanization
and industrialization are breaking up the joint family system.
Prof. A. Venkoba Rao found in Madurai district, that 64.5% of the
elderly people did not live in the joint family. 107 Ray(loc.cit.)
found in Delhi that 89.1% of the senior citizens live in joint
family.

50. Size of the family - In our series it was seen that the
majority (33.17%) had more than five members in the family. Only
0.33% had one member. Average size of the family was 4.88.

In pathak's series (Pathak,loc.cit. p.34), the average size
of the family was 5.26. In G O I survey (working class family
income and expenditure survey, 1981 - 82, Durgapur.loc.cit.p.6)
it was seen that the average size of the working class family in
Durgapur was 4.44.

It was reported 156 that the average family size has decli­
ned by 16%, from 5.6 in 1966 to 4.7 in 1980, in India.
51. Place of origin of individual and the family - The place of origin was also seen. 70.50% was originated in the geographical boundary of present day India, 28% in the boundary of present day Bangla Desh, and 1.5% originated in Nepal.

52. Place of movement of family members - 61.83% of the old people and their family members move in urban area. 30.17% had the movement in rural area and 8% move in the semi-urban area.

From the tables 5 and 63 it will be seen that 70.17% of our subjects spent their childhood in rural areas. At present 30.17% of them and their family members move to rural field. This showed that the rural connection had obliterated with the passage of time. Another reason may be that the rate of urbanization had increased.

53. Religious arrangements or occasion in the family - 8.67 percent of the aged person's family had no religious occasion or arrangements in the family and 6% had rarely done the same. Baring this 14.67% (8.67% + 6%), the rest had some arrangements either daily, yearly, or weekly or monthly system.

During the study, it was found that most of the 14.67% group who had nil or rare arrangements were not fully non-believers of God (atheist) but it was due to their apathy or they consider themselves unworthy of making the arrangements being lower caste persons.

Gisbert 157 mentioned that many people in the industrial area as found in various surveys (quoted also from psychological medicine, A study of sick society, New York, 1948, by L.Halliday)
are socially and mentally dis-organised due to decline in religious faith and loss of man's sense of origin and destiny.

54. Per capita monthly income of the family - In this series 19 persons (3.16%) had not given any information about family income. They either could not or did not give such information. 48.17% had upto Rs. 600, 30.17% had Rs. 601 - 800 and 18.50% had Rs. 801 and above per capita income of the family. G O I survey ( Working Class Survey, Durgapur, 1981 -82.loc.cit p.28 - 29 ) in Durgapur in 1981 - 82 considered the income of family under three headings :- 1. income from paid employment. 2. income from self employment including agriculture, trade, and profession etc. 3. income from other sources, such as rents, pension, interests, dividends etc. They found that in Durgapur the average per capita income was Rs. 251.08.

Seal ( Seal, loc.cit. p. 579 ) mentioned per capita income of Rs. 349 ( at 1960 - 61 price level as Rs. 100 ) during 1970-71 in India. In our series, total for all groups counted together, per capita monthly income comes to Rs. 696.83.

Average per capita annual income of factory workers earning less than Rs. 1600 per month given as follows ( India 1990. loc.cit. p. 648 ).

<table>
<thead>
<tr>
<th>Year</th>
<th>India</th>
<th>West Bengal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual-- Rs. 8440.</td>
<td>Annual-- Rs.10545.</td>
</tr>
<tr>
<td>1983</td>
<td>Per month- Rs. 703(approx)</td>
<td>Per month- Rs.878(approx)</td>
</tr>
<tr>
<td></td>
<td>Annual-- Rs. 8882.</td>
<td>Annual-- Rs.12093.</td>
</tr>
<tr>
<td>1985</td>
<td>Per month- Rs. 740(approx)</td>
<td>Per month- Rs.1007(approx)</td>
</tr>
</tbody>
</table>
55. Utensils used in the family - 97.67% of our study population used aluminium utensils in the house. Steel and stainless steel occupied second position (95.67%), and plastic, the third (91.67%). Various types and varieties of utensils were being used in the families of the aged. It was mentioned by Swathi (Hindu Survey of Indian Industry. 1990.loc.cit. p. 321-25) that aluminium utensils are facing competitions from stainless steel and other substitutes. It was seen in our study that most families were reluctant to further use of aluminium.

Bakthavathsalam 158 and his team found no definite relation between the type of containers used for storing water and cooking with urolithiasis in an I C M R sponsored study. The containers were made of aluminium, stainless steel, mud, brass, and others.

There is long standing discussion about the relation of aluminium intake and Alzheimer's disease. The senile plaques of A D contain aluminium at the core, but it is not clear whether aluminium triggers plaque formation. It is uncertain whether aluminium from water, cooking utensils, or medicines is a health hazzard. 159 Mallick 160 mentioned that cooking utensils may leak small amount of the element as a result of action by acids from food items, but the amount is negligible even with patients with impaired renal functions.

It was noticed that there is no evidence to date that aluminium mill workers or bauxite miners are unusually prone to develop encephalopathy or pre-senile dementia (Physiology and
cell biology of aging, loc.cit. p. 121 - 139). In our series, not a single case of dementia (A D) was found.

56. Appliances used in the family - Refrigerator was used by 58.5%, cooking machine by 1.5%, washing machine by 1.33%, and vacuum cleaner by 6% families of the aged study population.

G O I survey (loc.cit. p. 121 - 122) 1981 - 82 noted that the average monthly expenditure per family in Durgapur was Rs. 0.04 on earthenware utensil, Rs. 0.18 on iron utensil, Rs. 1.56 on stainless steel utensil, Rs. 0.19 on aluminium utensil, and Rs. Nil for plastic utensil. Expenditure on total household appliances, on an average per month per family was Rs. 3.98.

G.Srinivasan (The Hindu Survey of Indian Industry. 1990. loc.cit. p. 235 - 7) mentioned that India's middle class constitute 15% of the total population and over 30% of urban population alone. Urbanization and emergence of two-income families have spurred the demand for household appliances. The same was noticed, to some extent in our study.

57. Fuel used in the family - Coal was used by the majority (91.66%), followed by cooking gas (61.83%), kerosine oil (43.83%), and wood (10.83%). Electricity was also used by 1.83% of the families, for cooking purpose.

For lighting purposes, electricity was used by 89.17%, k-oil by 78%, which shows that electricity was not sufficient for the purpose.

G O I survey (loc.cit. p.121) of 1981 - 82 showed, the
average expenditure per family per month in Durgapur area as follows: - K-oil as fuel Rs. 3.79, as lighting fuel 2.46, Electricity as fuel Rs. 0.64, as lighting fuel Rs. 10.63, and cooking gas as fuel Rs. 0.59. The sum total on fuel and light as Rs. 62.54.

Mishra mentioned that 133 million tons of firewood, 73 million tons of cowdung and 41 m.t. of agricultural waste are burnt every year in India and the smoke and shoot of these are highly detrimental to the health of women and children.

58. Exposure to social environment and source of knowledge—Major exposure medium was local discussion and gossiping (92.83%). Television was next big exposure medium (70%). The cinema, press (news paper), and radio occupied 49%, 46.33%, and 21.83% respectively. 3% had no exposure medium apparently.

G O I survey, 1981–82 (loc.cit. p. 125) showed the average monthly expenditure per family in Durgapur as follows: - News paper - Rs. 2.54, Cinema - Rs. 3.80, Transistor - Rs. 0.88, Club etc. Rs. 0.10, and Library - Rs. 0.07.

It appeared that the people were discarding the news paper as source of knowledge which was being replaced by television gradually.

59. Cultural aspect - It had been seen that 95% of the old persons and their families were traditional in nature as far as custom was concerned, and 93.17% were orthodox in belief. Only 2% were liberal.

60. Area of residence - In this study we have used the term
'slum or near-slum', as those areas do not come under the exact definition of slum. A slum and a bustee are different in terms of municipal definition. A bustee is not less than 700 Sq.metre with huts and structures for human habitation. A slum is any plot of land with a collection of huts without any size being specified. An area is usually declared as slum if the Government is satisfied that conditions are detrimental to human existence, public health, and hygiene. 162

According to the above, it was observed that 96.17% lived in non-slum area and only 3.83% lived in slum or near-slum area.

61. Type of house - The majority of our study population, (90.17%) live in pucca house, followed by semi-kutcha(7%), and kutcha (2.83%).

The type of house and the building materials influenced, as shown in various studies, the morbidity. Joshep 163 found that among the residents of thatched houses, 41.1% had microfilaria, while there were 22.6% among the residents having tiled houses, and that was statistically significant.

Virareghavan 164 quoting Hazemann mentioned that most men want to be in touch with their kind and people show less mental indifference when they live close to the ground. People living in flats of high rise buildings suffer more.

As most of our subjects stay with the allotted houses of the company, they got pucca houses. In other areas the shortage of houses were prominent and all did not get the same. Urban development ministry 165 had estimated housing shortages of 31
million units (20.6 million in rural, and 10.4 million in urban areas) in our country as on 01-3-1991.

62. Per capita house area - As the industrial township had the houses with spacious spaces around them (set back), per capita house area had been taken as measurement instead of per capita floor area. These spacious places were utilised for use by residents themselves or for domestic animals. Otherwise, these areas were used for various purposes including flower or kitchen garden. Therefore, per capita house area was considered.

The majority (31.34%) had up to 30 Sq.ft., followed by 23% having up to 40 Sq.ft., and 16.83% having up to 60 Sq.ft., Only 3% had more than 80 Sq. ft. per capita house area.

Per capita land availability in India and in world is declining. A report from U N E P warned that per capita agricultural land is declining at a rate of 2% a year during 1980's.

The former chief Justice, Sri Bhagwati mentioned that in India it was estimated that per capita cultivable land will be 0.11 hectares by the year 2000.

Mitra also mentioned that in India per capita land availability was 0.6 hectares in 1971 which came down to 0.41 in 1988 (world figure was 2.68 hectares in 1988).

63. Cleanliness of house - About 21.84% of the aged study population had dirty house environment, and 14.83% had clean houses. Majority had moderately clean houses (63.33%).

64. Type of latrine - The majority (95.5%) had own latrine
in the house. 4.5% had common latrine, the users of which were all from outside the steel township. The common latrine was due to: - 1. shortage of land, 2. old house had been divided between two purchasers when latrine remained undivided, and 3. as a temporary arrangement during construction.

65. Water supply - Majority (67.5%) in our series got piped water supply at their houses. Those who use well (well + tube well) exclusively were 22.5%. More than 1/5th of the families use well because piped water supply arrangements were not sufficiently made.

Chakraborty mentioned that an estimated 80% of urban population of India got piped water supply in 1975.

As far as quality of water was concerned, soft water was available to 67.83% of the families of the aged. We counted the soft water as having up to 50 mg. of calcium or magnesium bicarbonate or sulphate per litre of water and hard, if beyond that. The term, moderately hard, very hard, temporary hard, or permanent hard (Park and Park, loc.cit. p. 170 - 71) were avoided.

The persons who use tube-well were examined repeatedly for hyper-pigmentation, hyper-keratosis, oedema, and weakness, etc. Water sample was examined at the laboratory to detect softness, as well as the presence of arsenic. This was done as some cases of arsenic poisoning was reported in W.B. and as investigated by Garai. Our report was below 0.002 mg./litre or negligible as compared with the safe limit of arsenic being 0.05 mg./litre as per U S P H standard.
66. Disposal of refuse - This was satisfactory for 80.33% of the families of the aged. In this area community dustbins were used by most people as available. Sengupta, on the other hand found in Calcutta, 82.54% unsatisfactory and 17.46% having satisfactory disposal of refuse.

The refuse was meant in this study as garbage, rubbish, ashes, stable litter, and street refuse excluding dead animals and industrial refuse as mentioned by Kawata. 170

67. About 86.17% of the families of the aged people did not have any domestic animal. Dog as domestic animal tops the list (7%), followed by cow (4.83%). Those who keep cow, did it mainly for milk for them and for some commercial purposes. Goat was kept by 1.50% families for milk only. The other group consists of 0.50% which include pig and cat. Pigs were kept in one family outside steel township for commercial purpose only.

68. Past surgical operation - While studying the elderly, Pathak (loc.cit. p. 45 - 46) mentioned that illness is such universal and frequent experience that one may not remember all, especially the minor ones. But the surgical operations especially the major ones were hardly forgotten.

It was also observed (Medical Clinic of North America, loc. cit. p. 334) that because of benign forgetfulness, elderly patients often can not recall specific complaints, and the events of clinical significance.

Joshi 171 and his team observed while conducting morbidity surveys that the illness was forgotten altogether or error had
crept in narrating their time or duration or both. It was concluded that morbidity data collected from human memory is liable to be distorted.

Oakley's representational memory which preserves the images of previous events, also called event memory or episodic memory. The other type is association memory is like Pavlovian condition reflex. The third type is abstract or semantic memory. The major defect in old amnesic people is less ability to transfer the material from short term to long term memory. The event memory is sometimes overlapped one upon another so that morbidity information may be distorted.

Here also we have experienced the same. A lot of informations could not be given or rather forgotten by the aged. Neither any record was available. But they remembered the surgical operations which even took place in childhood. Therefore, we recorded past surgical operations as a record of past illness.

Pathak (Pathak, loc. cit. p. 46 -47) observed that 50% of the aged people had some sort of surgical interventions during the past. Our observation was 50.33%, which was almost same. In the series studied by Pathak, some had gone through two and others a few operations in the past. In our series, nobody had any operation more than once.

69. Height - It was found in our series that the average height of men as 153.7 cm., and for women as 150.92 cm. Pathak observed (loc. cit. p. 64) in Bombay as 162.9 and 149.2 cm., for males and females respectively. Ray, found in Delhi, the height
of males, 165.4 cm., and of females, 156.1 cm. Sengupta, in Calcutta, found the height among the elderly males as 159.8 cm. In general, the people of eastern part of India is shorter than the western and northern part of the country, and the previous generation was shorter than the present generation. Elford mentioned that regional variation is also there in Britain. Men and women born in Scotland were shorter than those born in the south of England, irrespective of where they lived in Britain.

Chandra quoted Trotter and Glaser who observed statistically significant decline in stature due to spinal osteoporosis for each age group past maturity. The rate of decrease was estimated to be 1.2 cm. per 20 years.

Garg found in an urban community, the mean heights of 170.2, 160.1, 162.7, and 159.2 cms. among 60–64, 65–69, 70–74, and (75+) years age groups respectively, among males. Among females, those were 151.2, 151.7, 152.1, and 149.2 cms. in the same age groups respectively.

Srivastava and his team in a rural area of UP found the mean height as follows: Males - 60–64 years --166.06 ± 6.3 cm., 65+ years --166.06 ± 5.95 cm., and Females - 60–64 years --153.84 ± 4.21 cm., and 65+ years --151.99 ± 4.83 cm. respectively.

70. Weight - In Bombay, Pathak (loc.cit. p. 66) observed the average weight of male as 58.4 kg. and of female as 54.8 kg. In Delhi, Ray (loc.cit.) found the same as 54.6 and 51.7 kgs. respectively. In Calcutta, Sengupta (loc.cit.) found 43.8 kg. among elderly males only. In our series, it was 52.10 kg.
males, and 47.80 kg. for females.

Garg 175 found mean weight of 57.2, 59.1, 41.2, and 43.4 kgs. among 60 - 64 years, 65 - 69 years, 70 - 74 years, and 75 + years age groups respectively among males. Among females, in the same age groups those were 44.7, 45.4, 41.2, and 38.9 kgs. respectively.

Srivastava 176 and his team in a rural area of U P found the mean weight of males, 60 - 64 years as 45.96 ± 7.67 kg., and 65+ years as 43.72 ± 7.39 kg. Among females in the same age groups those were 40.41 ± 6.69 and 38.51 ± 5.72 kgs. respectively.

71. Nutrition index and Body mass index - The nutrition index was calculated as
\[
\frac{\text{weight in kg.}}{\text{height in cm.}} \times 100.
\]
Weight for height is an index which is independent of age. It was regarded as index of current nutritional status. Pathak(loc.cit. p. 88) observed in his series the average nutrition index for males - 36.3, and for females - 35.8. In our series, it was 33.8 for males, and 34.7 for females.

Purohit et al as quoted by Pathak )loc.cit. p.89) obtained the nutrition index ranging from 15 to 44 in old men and 28 to 34 among old women in lower class rural farmer village population.

Body mass index was calculated as
\[
\frac{\text{weight in kg.}}{\text{height in metre squire}}
\]
In our series, it was 22 with standard deviation of 2.16 for
males, and 23 with S.D. of 3.11 for females.

72. Average weight, over weight, and under weight - Pathak (loc. cit. p. 67) observed, 17.33% males were under-weight, and 2.56%, over-weight. Females were 3.06%, under-weight, and 22.21 percent, over-weight. The percentage of over-weight in females were more. Ray (loc. cit.) in Delhi, found the prevalence of obesity as 7.2% (Males - 7.3%, Females - 7%).

In our series, it was seen that, in males the percentages of under-weight was 4.11% and over-weight was 5.85%. The difference was not much, yet the over-weight males were more than under-weight males. In females, the over-weight was much more (24.06%) than under-weight (3.21%). This showed that some women increase in weight as they grow older.

73. Skin - It was seen in this study that females had more white and fair skin than males. The reason may be, males use more outdoors than females. It was also observed that about 1/2 of the aged population (47.33%) had some moles, wart, corn, and white marks on their skin. Pathak (loc. cit. p. 55) observed 7.5% having moles, telangiectasia, and 6% having leucoderma, and 3.2% having marks of wart or corn etc.

74. Hair - Pathak (loc. cit. p. 56) observed grey hair in 91.5% of men and 74% of women. 15.8% men were bald and none in the female group.

In our series, 33.9% males were partially bald and 8.7% had major baldness. In case of females, three persons (1.6%) had partial baldness. These were confirmed as non cicatrical alo-
In general, greying of hair begins in the third and fourth decades and 50% of the population is grey by age 50 (Aging skin -- Tonnesen, M.G. and Weston, W.L. -- Clinical internal medicine in the aged, loc.cit. p. 296 - 304).

75. Distribution of the aged study population according to the state of health - It was seen that 79.33% were ill at the time of survey, of which males were 79.67%, and females were 78.61%. And 20.67% were healthy, of which males were 20.33%, and females were 21.39%. Ray found in Delhi, 81.3% ill and 18.7% healthy. Sengupta, in Calcutta, found 75.56% ill, and 22.44% healthy among aged males.

A community based study by the department of P & S M of K.G. medical college, Lucknow, with 327 persons over 50 years of age showed 52.2% were ill (Park and Park, loc.cit. p.581). Maximum prevalence rate was 17.1% for arthritis.

In our study, the persons of 60 years and above were included and that might be the reason for higher percentage of sickness. However, the prevalence rate of osteo-arthritis in our series (17.16%) was similar to Lucknow study.

76. Average number of illness - In our series, it was 2.29 (Male - 2.22, Female - 2.46). It increased as age advanced.
Pathak (loc.cit. p.49) found 2.1 complaints per person (Males-1.97, Females- 2.17). In his series, the females were on the higher side like ours. Sengupta, found average 1.9 illness with the elderly males in Calcutta. In another report published in
1985 it was mentioned that among elderly women, 2.5 diseases was recorded on an average (Report, Bombay Hosp.Trust.loc.cit.p.4).

Rai 178 and his team in a study with slum dwellers in Lucknow found multiple illness, more common in older age groups. Garg 175 and his team found the prevalence of illness, 2.5 per aged person, 2.2 in males, and 2.6 in females.

77. Number of sickness - The existence of multiple diseases among the old is an ubiquitous phenomenon. In our series, only 7.98% suffered from one illness, and the rest, 92.02% had two to six illnesses at the time of survey.

In a study in urban community in Nagpur, S.R.Sanyal and his team (25th Annual Conference of I.P.H.A., loc.cit.p.32) had found 4.35 illnesses per sick person among 55 years of age group and above. Hypertension had 28.66% and chronic bronchitis had 14.6% prevalence rate. In our series, the average number of illness per ill person was 2.89 (Male - 2.79, Female - 3.13).

Ray, in Delhi found the same as 3.1 (Male - 3.0, Female - 3.2), and Sengupta in Calcutta as 2.5 among ill elderly males only.

C.A.Shamoin mentioned (Medical Clinic of N.America.loc.cit. p. 361 - 378) that 85% of the elderly have at least one chronic medical illness. 50% have two or more medical conditions.

Ray (loc.cit.) in Delhi found 9.4% having one, 35.4% having two, and 55.2% having three or more illness. On the other hand, Sengupta in Calcutta found 13.86%, 31.36%, 40.59%, 12.54% and 1.65% having one, two, three, four, and five illnesses respectively among males only.
Acute exacerbation of chronic illness sometimes complicates the picture. One symptom of a chronic disease at that time intensifies by quality and other symptom altogether suppressed, and hence, proper diagnosis and the counting of the number of sickness becomes difficult. In our series, we faced such situations a number of times especially with those above 75 years of age. This, most probably, is the peculiarity with the elderly group.

78. Illness and prevalence rates according to the system and age group - Pathak (loc.cit. p.49) noted in his study, the leading cause of morbidity as follows:- Gastro-intestinal diseases - Male - 26.35%, Female - 27.08%, Cardio-vascular disease - Male - 27.20%, Female - 26.04%, Surgical including orthopaedic conditions - Male - 33.72%, Female - 48.96%, Miscellaneous group of diseases - Male - 54.39%, Female - 64.59%.

The leading cause of morbidity was pulmonary and gastro-intestinal system among the patients above 50 years of age(M+F) as found by Arun Kumar in northern U.P.179

Kapil and Sood 180 in a study with 371 aged persons in Haryana found the common morbidity as chronic bronchitis (14.55%), followed by skin diseases (13.47%), arthritis (12.39%) etc.

79. Blood pressure and pulse rate - The study conducted by Pathak (loc.cit. p. 107) at Bombay showed, the mean systolic B.P., 145.4 ± 38.9 and diastolic B.P., 85.2 ± 11.9. In our series, it was 142.1 with S.D. of 15.48 as systolic, and 86.5 with S.D. of 7.9 as diastolic blood pressure. Pathak observed the
increase of B.P. with increase of age. Ray (loc.cit.) in Delhi-
study found the mean blood pressure for elderly males as 125.5
and for females as 128.2 as systolic, and 80.6 and 82.2 mm of Hg
respectively as diastolic. In his series, the increase of B.P.
with age was also noticed. Sengupta in a study at Calcutta, found
among the elderly males, the mean systolic B.P. as 132.5, and the
mean diastolic as 82.1 mm of Hg.

It was mentioned (Medical Clinic of N. America, loc.cit.p.
403) that there is reason to believe that hypertension in elder-
ly does not have the same underlying cause as essential hyper-
tension. Majority develop essential hypertension by 40 or 50 ye-
ars of age. The hypertension which begins beyond the age of 60
or 65 years is geriatric hypertension.

Owing to the absence of previous history, it was very di-
fficult to assess how many in our series were actually hav-
ergiatric hypertension.

Ghosh 181 in a study in Himachal Pradesh found higher mean
systolic and diastolic blood pressure at almost each age group
(all ages), primarily with urban influence at their formative
age. The findings were in conformity with other workers. In our
study we have noticed the difference with age group only.

Prakash and Gupta 182 observed that isolated systolic hy-
pertension when systolic pressure persistently raised above 160
mm of mercury, occurred among 15 - 45% of the population above
the age of 65 years. Miall 183 mentioned that Rose first de-
scribed the seasonal variation of blood pressure in Britain which
was confirmed by Brennan. The later showed that it was greater in old than in younger subjects. In our study, we did not observe any seasonal variation.

Mukhopadhyay and Chakraborty \(^{184}\) found the mean systolic B.P as \(139 \pm 25.76\) and \(146.5 \pm 26.33\) in 60 - 64 years, and (65+) yrs. age groups respectively in males and \(137.1 \pm 12.15\) and \(144.8 \pm 22.2\) in females of same age groups. The diastolic pressure was \(87.4 \pm 11.85\) and \(88.1 \pm 14.45\) in males of same age groups, and \(87.7 \pm 12.09\) and \(89.0 \pm 10.14\) in females of same age groups.

Srivastava \(^{176}\) found in a rural population of U.P. the blood pressure as follows: - Male - 60-64 years group -- systolic as \(128.15 \pm 10.73\), and diastolic as \(82.50 \pm 7.88\) mm of mercury. (65+) years group -- systolic as \(129.27 \pm 10.45\), and diastolic as \(84.22 \pm 6.67\) mm of mercury. Females in the same age groups, systolic as \(125.90 \pm 11.0\) and diastolic as \(81.85 \pm 7.82\) and systolic as \(128.73 \pm 10.06\) and diastolic as \(84.27 \pm 8.0\) mm of mercury respectively.

Pathak (loc.cit. p.105 - 6) observed in his series, the average pulse rate of 76 per minute (Male - 75.9, Female - 76.0). He quoted American heart association which accepts 50 - 100 as normal pulse rate per minute. He observed greater pulse rate among females.

In our series, the mean pulse rate was 77.46 per minute \(+6.61\) (Male - 77.14 \(+5.92\), Female - 78.15 \(+8.04\)). We also found higher rate among females.
80. Haemoglobin - The level of haemoglobin below 10 Gm% in our series was in 89 cases (14.83%), males - 34 (8.23%), females 55 (29.41%). Pathak (loc.cit. p. 182) found in Bombay 13.53% as anaemic (male - 10.4%, female - 25%). Ray, in Delhi, found 9.9% as anaemic (male - 7.3%, female - 12.7%), and Sengupta found in Calcutta among the elderly males, 28.67% anaemic.

In Asia about 10% of men and 20% of women are anaemic (Park and Park. loc.cit. p. 119). It was also observed that the percentage of low and deficient levels of serum haemoglobin ranged between 4 and 23% among the American geriatric groups (Medical Clinic of N. America. loc.cit. p. 304).

Pathak (loc.cit. p. 181) obtained mean haemoglobin level for all cases as 12.52 ± 1.97 Gm%. In our series, it was 11.34 Gm%.

Zauber and Zauber 28 found the mean Hb. value of very old (above 84 years of age) as 14.8 ± 1.1 g/dl for men and 13.6 ± 1 g/dl for women in a suburban locality of U.S.A. They also quoted Garry et al (1983) who found 16.0 ± 1 g/dl for elderly men and 14.7 ± 0.9 g/dl for elderly women in the U.S.A.

Paul. A. Seligman mentioned that a number of studies have indicated that Hb. level decreases as a function of age. Normal adult values for males, 15.5 Gm% (range, 13.3 - 17.7), and for females 13.7 Gm% (range, 11.7 - 15.7). And over the age of 65 years in males, 12.9 Gm% (range, 9.9 - 15.9). It was estimated that over 65 years both sexes were having almost equal (Cl. Int. med. in the Aged. loc.cit. Ch. 16. p. 280 - 95).
81. Stool examination - In majority of cases, the stool examination was conducted more than once to assess the exact result. Pathak (loc.cit. p. 136) obtained in his series the prevalence of entamoeba hystolytica as 21.43%, giardia lambia as 1.58%, ascaris lumbricoides as 4.43%, and trichuris trichuria as 1.58%. Ray, in Delhi found, entamoeba hystolytica as 4.3%, ankylostoma as 2.2%, ascaris lumbricoides as 0.9% among the elderly group of males and females. Sengupta found in Calcutta, E.H. as 1.23%, A.Lumb. as 29.85%, giardia as 11.38%, and Tri. trichuria as 0.61% among the elderly males.

In an industrial town of Assam (Duliazen), Mahanta and Laskar found the prevalence rate of giardia lambia as 6.7%, E.H. as 6.2%, A.Lumb. as 10.1%, and Tri. trichuria as 1.5% in all age group. The study was carried out within a span of one year in an industrial community where all the people had sanitary latrine facility, chlorinated water, and edibles from a hygienically controlled market.

In another study Yunus in a rural area near Aligarh Muslim University found the infestation rate gradually declined as age advanced and minimum at the age group of 55 and above years (63.1% in 1 - 5 years group, and 26.8% in 55+ years group). The incidence of giardia was 8.5% among 55 years and above age group and entamoeba hystolytica was 13.2%.

In our series, we found E.H. as 6.33%, giardia as 7.16%, ascaris as 1.17%, and trichuris trichuria as 1.83%, and the total as 16.50%.
82. Urine examination - This was also done for more than once in majority of cases, like stool examination. Total number of examination was same in both the cases. This was so, that a comparison could be made if any, and to avoid bias.

Pathak (loc.cit. p. 139) found 5.5% of the elderly people having reducing substance in urine and 2% cases of albumin in urine.

83. Diseases of Respiratory system - In our series, the total prevalence of respiratory diseases was 32.83%. Chronic bronchitis occupied the major portion (14.50%). Chronic bronchitis is a condition characterised by chronic cough with increased mucous secretion and expectoration.

Dasgupta 187 quoted Morgan who defined industrial bronchitis as the condition characterised by cough, sputum expectoration for at least 3 months with or without obstruction of airway and that is related to inhalation of dust for a continuous period of time.

Malik and Wahi 188 studied the prevalence of chronic bronchitis in north Indian adults. The prevalence rate of chr. bronchitis was 10.08% among males, and 4.08% among females. Among males, 20% smokers suffered from chr. bronchitis and 10.08% non-smokers suffered from the same. For the purpose of study chr. bronchitis was diagnosed as the presence of persistent cough and/or phlegm for as much as 3 months a year and for at least 2 successive years or more. They also found that chr. bronchitis was more frequent among unskilled and agricultural workers and
among the upper income classes though that were statistically insignificant.

In a study among females in Delhi, Mishra \(^{18g}\) and his team found chr. bronchitis was commonest illness (58%) among females of 60 years and above age, followed by bronchiectasis (17%), bronchial asthma (15%), pulmonary tuberculosis (7%), and miscellaneous diseases of respiratory system (3%). 28% of the females above 60 years group suffered from cor-pulmonale. The influence of smoking was there, the incidence of which was highest (17%) in patients above 60 years of age. It was explained that the high incidence of smoking in geriatric females was due to established status in the family and they were less bound by family constraints and social taboos.

Ray (loc.cit.) in Delhi found the prevalence of chronic bronchitis as 12.4% (Sengupta in Calcutta - 10.22% among males, and our series having 14.50%), acute bronchitis as 0.5% (Sengupta in Calcutta - 0.75%, and our series - 0.50%), bronchial asthma as 2.7% (Sengupta - 5.24%, our series - 7.83%). In our series pulmonary tuberculosis was 1.83% (Sengupta - 1.99%), and chronic pharyngitis was 4.5% (Sengupta - 0.50%).

Pathak (loc.cit.p. 128) observed in Bombay 3.6% of elderly males and females suffering from bronchiectatic changes which was 2.83% in our series.

84. Diseases of the alimentary system - In our series, constipation had the highest prevalence rate (16.83%) among the diseases of the alimentary system. Constipation was defined as
less than three bowel movements per week. 190

Constipation in the elderly group is very common as mentioned by Thompson and Heaton. Thompson 191 found 10% of British population suffering from constipation, 3% young adult and 20% elderly group.

Pathak (loc.cit. p. 134 - 135) in his series in Bombay found the prevalence rate of constipation as 7.2% (Sengupta in Calcutta - 10.97% among males, and our series - 16.83%), and chronic gingivitis as 2.2% (our series - 0.33%). Ray (loc.cit.) in a study in Delhi found the total prevalence of periodontitis as 11.2% (our series - 0.33%), caries tooth as 10.2% (our series - 2%, Sengupta - 8.48%), peptic ulcer as 2.8% (our series - 2.83%, Sengupta - 1.74%), and diarrhoea and enteritis as 4.8% (our series - 3.17%, Sengupta - 0.5%).

85. Diseases of the circulatory system - The total prevalence of the diseases of the circulatory system was 23.17% in our series. Hypertension occupied 14.17%, followed by ischaemic heart diseases (3.50%), and haemorrhoids (3%), left ventricular failure (1.83%), and hypotension (0.67%). Pathak in Bombay (loc. cit. p. 108) found in his series, the prevalence rate of hypertension as 14.03% (counting B.P. as above 170/100 mm of Hg.). Ray in Delhi found 17.4% as hypertensives, and Sengupta in Calcutta, the same as 9.3% among the elderly males. In Ray's series the ischaemic heart diseases was 1.7% (Sengupta - 2.74%), haemorrhoids was 2.5% (Sengupta - 1%), congestive heart failure was 0.5% (Sengupta - 0.25%), and hypotension was 0.7% (Sengupta...
Hypertension occupied the highest rate (14.17%). In India about 10 - 15% people suffer from this (Ed. J I M A 1987; 85: 161 - 2. loc.cit.). In the U.S.A. the national health survey (1971 - 74) data showed the prevalence of hypertension, nationwide as 9% in white adults and 22% in black adults. Over the age of 65, the prevalence increased to approximately 50%, with a female and black predominance (Medical Clinic of N. America. loc.cit. p. 395).

Pathak (loc.cit. p.112) quoted various authors who mentioned that arterial pressure does not rise with age in certain primitive communities in Kenya, Pacific Islands, and other places (Shaper et. al. 1969), and in some oriental populations hypertension are said to be uncommon (Cohen, 1953, Lin et.al.,1959). The primitive races are said to maintain low vascular pressure throughout life, but when they adopt ways of modern civilization, they show progressive increase of B.P. with age ( Shaper et. al., 1969). It was explained that the secure life of the tribe and insecurity in civilization causes this difference -- ( Pickering, 1974 ).

86. Diseases of skin and subcutaneous tissue - The prevalence rate of this group in our series was 11.17%. Pruritus occupied highest (3.17%), followed by eczema (3%), seborrhoic dermatitis (2.83%), urticaria (1.17%), lichen planus (0.67%) and bullus pemphigoid (0.33%). Pathak (loc.cit. p.55) found in Bombay the prevalence rate of eczema as 4.8% (Ray in Delhi - 3.5%,

- 0.5%).
Sengupta in Calcutta among elderly males - 1%). Ray found 0.2% as urticaria, while Sengupta found the same as 0.5%. Sengupta found the rate of pruritus as 0.25%.

87. Infective and parasitic diseases - The total prevalence in this group was 23.33%. Giardiasis occupied the highest position (7.16%), followed by amoebiasis (6.33%), and filariasis (6.17%), leprosy occupied lowest position (0.67%).

While Pathak in Bombay, and Ray in Delhi did not find any case of leprosy, Sengupta in Calcutta found the prevalence rate of the same as 0.75%, and filaria as 3.24%.

88. Diseases of the endocrine system - In our series, diabetes mellitus occupied 12.50% (Male - 12.83%, Female -11.76%), hypothyroidism occupied 1.33%, and hyperthyroidism occupied 0.5 percent. Prof. Dwivedi (loc.cit) mentioned that in India, about 9 million people have varying degrees of thyroid enlargement. Survey in Madhya Pradesh showed the prevalence rate among the examined population was 21.34%. The rate was highest (28.9%) in 56+ years age group and among females. Hurley (Medical Clinic of N. America. loc.cit. p.497) reported the prevalence of hyperthyroidism as 0.5 to 3% and hypothyroidism between 0.5 to 3.8% among the elderly population. The prevalence of thyroid nodules increases progressively with age reaching approximately 5% by the age of 60. Thyroid disease is 3 - 13 times more common in women than men.

Dutta 210 quoting Sathe mentioned that in India the prevalence rate of diabetes mellitus varied from 0.7% at Pondicherry
to Madras. The prevalence of type 2 diabetes is about 10% by the age of 60 years and 16 - 20% by the age of 80 years in general, as mentioned by Bennett. 192

Ramachandran 194 and his team in a study in the industrial township of Kudremukh iron ore company in Chicmagalur district of Karnataka, found overall prevalence of 5% diabetes in 20 years of age and over. It was 21% in over 40 years age group, 41% in 55 - 64 years age group, and 37.5% among 65 and over age group. They also quoted the multi-centre study done by I C M R (1975) when overall prevalence of 1.8% in the 15 years and over age group, and higher rate in urban than rural (2.1% and 1.5%) were found.

Increased prevalence rate found in the industrial town of Kudremukh may be due to improved nutritional status, urbanization and industrialization, and increased life expectancy, as assessed by them. Ray in Delhi, found the prevalence rate of diabetes mellitus as 16.37% (Male - 14.6%, Female - 17.9%). Pathak (loc. cit. p. 94 and 212) mentioned that diabetes mellitus in western India among elderly group varies from 5 - 10%. In his series it was 4.6% (Male - 4.1%, Female - 6.2%).

Merriman 195 quoted Zimmet to show that the prevalence rate of diabetes mellitus among Indians in Singapur as 6.1%, in Malaysia as 4.2% and in South Africa as 10.4%, whereas in India it is 2%. This, it was mentioned, demonstrated that the prevalence rate of diabetes increased with the development of the country of residence.
Diabetes produces complications when various organs are involved. In a study, at New Delhi, Mishra and Mansharamani found among elderly females, that neuropathy as the commonest complications (77.7%), followed by retinopathy (50%), and nephropathy (27.7%).

Though we had moderately high rate of diabetes mellitus, we did not get any complications as mentioned in the above study.

89. Diseases of musculo-skeletal and connective tissue system - Total prevalence of this group was 21.67%. Osteo-arthritis occupied 17.17%. In a study at Delhi, Ray found the prevalence of osteo-arthritis as 18.9% among elderly males and females, while Sengupta in Calcutta found among elderly males, the rate as 13.71%.

Mohindra found in a study at Meerut the early onset of cervical spondylosis at an average age of 40 years. In the western countries the age was above 50 years as quoted from Brain, Wilkinson, and Cyriax. This common degenerative condition was common among house-wives, shop-keepers, and table workers in Mohindra's series.

Bhattacharya mentioned rickets as a significant problem in India. Dietary errors, inadequate exposure to sun and ascariasis were important causes of rickets in Calcutta, as he pointed out. In our series, we got only one case (old case) of rickets.

90. Diseases of genito-urinary system - Total prevalence of
this group was 15.67%. Among males commonest was hydrocele (7.51%) and then enlarged prostate (2.42%). Among females, commonest was prolapsed uterus (8.55%), and then chronic cystitis (3.21%). Ray in Delhi, found the prevalence rate of hydrocele as 2.1% (Sengupta in Calcutta - 4.95%), and prostatic enlargement as 1.6% (Sengupta - 1.25%).

Benign prostatic hyperplasia is universal phenomenon in men more than 40 years old (Medical Clinic of N. America. loc. cit. p 446). It had been mentioned that 65% men at 65 had some prostatic enlargement.

A community study in Britain showed that 20% elderly women and 10% of elderly men suffer from bacteriures. The prevalence increased with age in both sexes.

91. Diseases of nervous system and special sense organs - Total prevalence was 17.17% out of which cataract occupied the highest position (9.67%). Ray in Delhi found the prevalence rate of parkinsonism as 1% (Sengupta - 0.25% in Calcutta, and our series - 0.17%), hemiplagia as 0.2% (Sengupta - 1.5%, and our series - 1.33%), neuralgia as 0.2% (Sengupta - 0.25%). Corneal opacity as 1.5% (Sengupta - 0.75%, our series - 0.50%), Cataract as 23.4% (Sengupta - 17.70% and our series - 9.67%), and epilepsy as 0.20% (our series - 0.17%).

92. Diseases of ill-defined conditions - It had been mentioned that many complaints presented by the elderly group had been falsely attributed to aging rather than to various nutritional, and endocrinial deficiencies. These are subclinical and
the absence of critical measurement procedures make the detection difficult. For example, hypothyroid condition leads to weakness and lethargy, constipation, cold intolerance, anorexia, loss of mental and auditory acuity etc. These are sometimes put under ill-defined conditions.

Ray in Delhi, found the prevalence rate of vertigo as 0.7% (Sengupta in Calcutta - 0.5%, our series - 1.17%), hyperesthesia as 0.2% (Sengupta - 0.5%, our series - 0.50%), anorexia as 0.2% (Sengupta - 0.5%, our series - 1.17%, Pathak in Bombay as 8.28% as poor appetite), and flatulence as 9.8% (Sengupta - 0.5%, and our series - 1.17%).

93. Diseases due to accident and injury - Gupta and Mohanti in a study at Cuttack found that the incidence of injury declined above 60 years of age. In the age group of 61 to 70 years 10.03% cases declined to 6.39% in above 70 years of age group.

In our series, the prevalence rate in this group was 1.83% of which burn occupied 1%. Ray in Delhi, found the total prevalence of accident as 1.5%, while Sengupta in Calcutta, found the rate as 1.75%.

94. Diseases of blood and blood forming organs - The total prevalence of this group was 15.16%. While anaemia was common in both male and female, the other two, polycythaemia vera and thrombocytopenic purpura, one case each (0.24%) were with male group only. Those were diagnosed in hospital long back.

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95. Diseases of psychological origin - C. Shamasundar and
his team quoted many authors (Dube - 1970, Elnagar - 1971, Verghese - 1973, and Carstairs and Kapur - 1976) to point out that about 1% of Indian population at any given time suffer from psychological diseases that require treatment.

Sahni 200 pointed out quoting various sources that the mental illness is at least as common in India as in west, and 10 to 20 per thousand population in India are affected with serious mental disorder at any given point of time.

Maheshwari 212 pointed out that as the mental diseases are disabling rather than killing diseases, and radical cure is hardly possible, the priority in mental health field is low. But the problem is growing due to industrialization and urbanization, transition of family life and modernisation, which leads to various conflicts situations etc.

In our series, the prevalence was 1.17% in this group. Out of 5 cases of anxiety, one case is mixed with illness phobia, as confirmed from the psychiatry department. Phobia had been subdivided into agoraphobia, illness phobia, and social phobia. 201 Ray (loc.cit.) in Delhi, found the total prevalence of the diseases of psychological origin as 1.2%, while Sengupta in Calcutta found the rate as 1.5% among elderly males.

96. Deficiency diseases - Total prevalence was 10.67% in this group. Out of which 8% was for vitamin B-complex deficiency. Ray in Delhi, found the prevalence rate of vitamin-A deficiency as 1.2% (our series - 1.33%), and vitamin B-complex deficiency.
deficiency as 11%. Sengupta in Calcutta found among the elderly males, the prevalence of malnutrition as 0.5% (our series - 1%).

97. Disabilities - Total prevalence of disability in our series was 3.3%. Out of 20 cases, 13 were completely disabled, and 7 cases were partially disabled.

Chakraborty and Rahaman found in Singur area of Hoogly district of W.B. that the disability rate increased with age, reaching maximum in 55+ years age group. Majority of the disabilities (54.6%) were due to disease. Next, old age (24.7%), congenital (12%), and accident (6.4%).

In India, most probably, we do not get the proper figure of disability. According to non-official estimate, India has over 50 million disabled persons. In another report, it was said that in India about 12 million people suffer from one disability or other. This covered totally blind, totally crippled, and totally dumb persons excluding other disability, and mental retardation. Those having locomotor disability constitute maximum (5.43 million), visual disability (3.47 million), hearing disability (3.02 million), and speech disability having 1.05 million. Disability prevalence rate increased with increase of age and maximum age group suffered was 60 years and above age group for all types of disability except the speech disability, which was maximum in 5-15 years of age.

Gloag mentioned that an estimated 6.2 million adult persons, in Britain have at least one disability and about 70%
of disabled adults are aged 60 years or over. More women are disabled than men.

Hart 205 studied the disability among very old people (85 years and above) in London and found locomotor disability as 21.65%. Quoting Hunt he showed the decreasing ability to carry out domestic activities increase with age. 13 - 25% of people, aged over 85 years were unable to open jars, carry a sauce pan or make a cup of tea. It was noticed that sensory, neurological and musculo-skeletal disorders were main causes of locomotor disability. It has been mentioned that several studies have demonstrated that changes in the functional abilities at old age decline approximately one percent per year. Sudden acceleration of this rate of decline often occur at higher ages (Advanced Geriatric Medicine 3, loc.cit. p. 177).

Corrado 207 mentioned that 80% of visually disabled people are over retirement age and 60% of people over 70 years of age having some degree of hearing loss in England. Shillman 208 mentioned the common causes of visual handicap in Britain were macular degeneration, glaucoma, cataract, and diabetic retinopathy.

In our series, we did not get a single case of diabetes mellitus with complication.

98. Important or major causes of illness - There were six kinds of illnesses of which the prevalence rate was more than 10%. These were osteo-arthritis (17.17%), constipation(16.83}
percent), anaemia (14.84%), chronic bronchitis (14.50%), hypertension (14.17%), and diabetes mellitus (12.50%). Others were below 10%. Cataract, though very common illness of the old, in our series, occupied only 9.67%.

Mukhopadhyay in a study found that a shift from the communicable to non-communicable diseases has taken place over the years in urban health centre area of Chetla, Calcutta. The proportion of deaths from respiratory and diarrhoeal diseases have been significantly lowered during 1957 - 1985, while the proportion of deaths from non communicable diseases like heart diseases, malignancy etc. have increased.

It is probable that, Mukhopadhyay's observations may have reflected in morbidity data also. In our series, we have seen that hypertension, diabetes mellitus, osteo-arthritis, constipation etc. were occupying higher position and and enteritis and diarrhoea (3.17%), ascariasis (1.17%), leprosy (0.67%) etc. remained at the bottom.

Association between the state of health and various individual, socio-economic, and environmental factors:-

It was found that the factors mentioned above were asso-
associated with the morbidity of the study population.

99. Age had a close association with the rate of morbidity (Table - 122). 73.51% was sick among the age group of 60 - 64 years which steadily increased to 96.30% among the age group of 80+ years, and this was found to be statistically significant (p < 0.05).

100. As far as sex was concerned (Table - 123), the sickness rate was 79.67% among males and 78.61% among females. The difference was very little, and not statistically significant.

101. Status in the household (table - 124) was found to be associated with sickness rate. The independent earner had 66.67% sickness rate, the dependent earner had 75.89%, and the dependent group had 82.11%. The difference in proportions were found to be statistically significant (p < 0.02).

102. As far as literacy status (Table - 125) was concerned, it was seen that sickness rate was not associated at all with literacy status with statistical significance. It is possible that in an industrial area the literacy status hardly play any role in many social events. Earning money and the utilisation of wealth for multifactorial healthy living do not depend much on literacy status. This, most probably, had reflected on sickness rate.

103. It was seen that more people were sick (84.13%) in
addicted group (Table - 126), than in non-addicted (74.04\%) group. The difference in proportions was statistically significant (\( p < 0.005 \)).

Similarly, the type of addiction had also statistically significant association with sickness rate (\( p < 0.001 \)).

104. It was also seen that chronic bronchitis (Table - 128) was related with smoking. While 22.50\% had chronic bronchitis among smoking group, the non-smoking group had 11.32\% or nearly half. The difference in proportion was statistically significant (\( p < 0.001 \)).

105. As far as past occupation was concerned, it had no statistically significant relation with sickness rate.

106. Adequacy of cloth also had no statistically significant relation with sickness rate.

107. Marital status (Table - 131) had some association with sickness rate. 33.34\% people were sick among unmarried group, 77.22\% among the married whose spouse was living, and 85.72\% among the married whose spouse were dead. The difference in proportions were found to be statistically significant (\( p < 0.001 \)).

The old people who lost their spouse became more sick. This may be due to lonely life, indifferent attitude towards life, lack of care previously given by the spouse etc. Eventually, the mortality may be also affected.
108. On the other hand, the age of marriage had no statistically significant relation with sickness rate.

109. However, it was seen that 72.68% were sick, whose conjugal life (Table - 133) was un-interrupted in comparison to 83.33%, having interrupted conjugal life. The difference of proportion was statistically significant (p < 0.005).

110. Among the females, the number of pregnancy was associated with sickness rate. The rate of sickness was more among those who had more pregnancies. The difference of proportions were statistically significant (p < 0.005).

111. Age at first pregnancy (Table - 135) had important bearings on health. It was seen that 85% were sick among those who had first pregnancy within 20 years of age, and 72.73% among those who had it above 20 years of age. The difference in proportions were statistically significant (p < 0.05).

112. The type of family (Table - 136) had an important relation with sickness. In the joint or extended family, 77.31 percent were sick, while 85.94% sick came from the unitary family. The difference in proportions were statistically significant (p < 0.05). In joint families, most probably, many buffers neutralised the side effects of ups and downs of life, and hence, pulled the sickness rate downwards.

113. Per capita income of the family (Table - 137) how-
ever, had been found not associated with sickness rate in statistically significant way (p > 0.10). Though the people earn more money in the industrial area than other parts of the country, yet it did not prove itself as panacea of all the evil.

114. The sickness rate was less with more per capita house area (Table—138). The rate was 87.23% among those who had upto 30 Sq.ft. area, which decreased gradually and reached to 50% among those who enjoyed above 80 Sq.ft. area per head. The difference in proportions were statistically significant—-(p < 0.001).

115. The domestic animal was found to be not associated with the sickness rate in a statistically significant way—-(p > 0.50).

116. It was seen that 94.92% were sick among those who had unsatisfactory disposal of refuse (Table—140) and 75.52 percent who had satisfactory disposal of refuse. The difference in proportions were statistically significant (p < 0.001).

117. However, it was found that the difference in proportions of sickness among those who enjoyed clean, moderately clean, and dirty houses (Table—141) were not statistically significant (p > 0.50).

118. The type of water supply (Table—142) also affected the sickness rate. It was lowest among those who use house
tap (72.35%), and highest among those who use well and tube well (95.56%). The difference in proportions was statistically significant (p < 0.001).

119. It was seen that there was an association of high blood pressure with the type of diet. 17.30% were hypertensive among non-vegetarians, while 8.90%, about half, were in the vegetarian group. The difference in proportions was statistically significant (p < 0.005).

120. Past physical activity (Table -144) had also influenced blood pressure. 19.60% was hypertensive who had no past physical activity and 10.90% among those who had the same. It was the statistically significant difference of proportion (p < 0.005).

121. Present physical activity (Table - 145), however, had no statistically significant association with hypertension (p > 0.05).

122. Hypertension (Table - 146) had also been influenced by addiction. 10.90% hypertensives were non-addicted, while 17.10% hypertensives were addicted. The difference was statistically significant (p < 0.05).

Among the risk factors of hypertension, we, in our series found the statistically significant association with the type of diet, past physical activity, and addiction. No significant association was seen with the present physical activity.
We dealt with a particular group who had already accustomed with diet-type, addiction, and physical activity for at least a few decades. Therefore, it was possible, that the cardio-vascular system and the body as a whole had significant interaction with the former and not with the present activity which was of recent origin in most of the cases.

123. Joshi 213 found in a study at Bikaner slum area, the statistically significant association between the use of latrine and intestinal parasitic infestation.

In our cases the situation was a bit different in the sense that none of our subjects used open land for defecation. We divided our subjects having own latrine and having common latrine. It was seen that 22.2% had parasitic infestations among those who had common latrine and 16.2% had infestations having own latrine (Table-147). But this difference was not statistically significant (p > 0.10).

124. Dutta and his team 210 found various risk factors associated with diabetes mellitus among the serving central government servants, in Pune. Obesity was one such.

In our study, we also found (Table-148) overweight was associated with diabetes mellitus. 24.2% was diabetic among the persons who were over weight, and 11.1% were so among non-over-weight group. The difference in
proportion was statistically significant (p < 0.005).

No other risk factors, in our series, such as age, sex, addiction, and hypertension were associated with diabetes mellitus in statistically significant ways.