# A Community Based Study of the Morbidity Profile among the Elderly in Chandigarh, India

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**Objective:** To study the morbidity pattern of the elderly and to assess the treatment modalities.

**Study Design:** Community based, House to House, Cross sectional, Sample size selected by stratified random technique. Urban areas of Chandigarh.

**Subjects:** Three hundred and sixty two persons aged 65 years and above, 313 from urban and 49 from rural area.

**Results:** Among 362 elderly registered in the study, 153 were males and 209 were females. A large number of the subjects (89%) were suffering from at least one medical problem. Morbidity among rural subjects was observed to be less when compared to urban subjects. Females had higher rate of morbidity. Common presenting symptoms were pain/ swelling of joints (36.5%), limitation of movements (20.2%), indigestion/ heartburn (17.7%), backache (17.4%) and excessive tiredness. Medical history and physical examination by the physician revealed that most common diseases in order of the magnitude were hypertension (58%), osteoarthritis (50.55%),cataract (18.51%), gastritis (17.67%), deafness (13.53%) and diabetes mellitus/ hyperglycemia (12.15%). Anaemia (estimated by Haemoglobin estimation below 12 gm%) was recorded in 68.2% of the subjects. Study also observed that elderly with ailments were taking treatment in 68% of the conditions.

**Conclusion:** The study has highlighted the high prevalence of morbidity among elderly. Thus, there is an urgent need to develop geriatric health care services in developing countries on the basis of existing morbidity profile.

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Improvements in health care facilities have brought about longevity which is considered to be one of greatest achievements of the 20th century. The ratio of older persons has changed dramatically from approximately one in fourteen in the fifties to about one in four at present[1]. Projections indicate that by 2020 there will be more than 700 million people aged 65 years and above in the world, two third of them in developing countries[2]. Three out of four countries projected to have the largest number of people in the year 2025 are located in Western pacific and South East Asia: China, India and Indonesia[3]. From the morbidity point of view, at least 50% of the elderly in India have chronic diseases[4]. This poses a greater responsibility on health services especially in developing countries like India where there is a greater strain on available health infrastructure. Only limited data is available on problems of elderly in India which is essential to develop, plan and evaluate the programmes for the aged. Thus, the present study was carried out in rural and urban areas of Chandigarh, a city located in Northern part of India, to find out the morbidity profile among elderly.

**METHODS**

Union Territory of Chandigarh is having a population of over 0.8 million[5]. Chandigarh also known as "beautiful city", is situated at about 250 kms from the national capital of New Delhi and is well acclaimed for its good architectural planning, excellent educational facilities and a network of health institutions.

**STUDY DESIGN**

The study was conducted in urban and rural areas of Chandigarh having about 90% population in urban and 10% in rural areas. The city has 47 sectors and 26 villages. Each sector is a unit. Therefore, the list of all sectors with approximate number of households was prepared and subsequently households were selected by stratified random technique in proportion to the population in urban and rural area. The team visited the selected number of the houses and enquired for the presence of any elderly of the age of 65 years or more. Four villages were selected randomly from the list of all villages. The number of households was decided on the basis of population of the village. A total of 250 households in urban area and 50 households in rural area were selected.

A team comprising of consultants, medical officer, medical social workers, laboratory technician were given training in the Department of Community Medicine, Government Medical College, Chandigarh, so as to collect uniform information from the subjects. The team from the department visited the selected number of houses and collected information on a pre-designed and pre-tested format. The part-1 of format comprising of general demographic structure of the family was collected by medical social workers by interviewing with the subjects using interview technique.

Part II of the format, comprised of medical history and symptoms. The male and female doctors using the interview technique as per requirement collected data regarding the functional status of elderly. A general and systemic examination was performed.

Screening for hearing impairment was assessed by using tuning fork and hearing test and vision was tested by Snellen's chart. The investigations were conducted at the same time or appointment was given on following days as per the convenience of the subjects. Investigations done in the study included haemoglobin estimation by Sahli's method, random blood sugar by glucostics quick test, ECG was done in all the subjects in their households by battery operated machine. The data was entered in the computer and analysed on the FoxPro programme. The study was done over a period of one year in 1998-1999.

## RESULTS

In the present study, 1882 families having 7937 members were visited. There were 434 elderly in the study population and the proportionate geriatric population (65 years and above) constituted 5.47% of the total study population. Seventy-two were not included due to their non-availability in the families. Out of 362 subjects interviewed, 313 were from urban area and 49 from rural area, 153 (42.3%) males, and 209 (57.7%) females. Majority (66.6%) were in the age group of 65-74 years followed by 26.8% and 6.6% in 75-84 years and 85 years and above age group, respectively.

Table 1. **Current medical problems and medical care***

| Medical Problems | Urban N=313 | Rural N=49 | Total N=362 |
|---|---|---|---|
| Total Number of Medical Problems recorded | 579 | 70 | 649 |
| Average No. of ailments per persons | 1.85 | 1.43 | 3.28 |
| Medical Care | N=579 | N=70 | N=649 |
| Treatment taken for medical problems | 411(71.0) | 30(42.9) | 441(68.0) |
| Medication Adequate | 304(52.5) | 19(27.1) | 323(49.8) |
| Medication Regular | 290(50.0) | 19(27.1) | 309(47.6) |
| Seeks help for medication : yes | 73(23.3) | 6(12.2) | 79(21.8) |
| Takes as per prescription : yes | 209(66.8) | 22(44.9) | 231(63.8) |

*Anaemia is excluded.*

Total number of illnesses among 362 subjects was 649 as shown in Table 1. Anaemia was excluded from these medical problems. Therefore, average number of illnesses per persons was recorded as 3.28. At the time of survey, 88.9% of the study population was suffering from at least one ailment while 69.9%, 47.3% and 16.9% of population was suffering two, three and four or more ailments respectively. Table no.1 shows that only 68% of elderly were taking medicines for their illness and among them 73.24% were taking adequately, and 70.0% were taking on regular basis. Consumption of medicines was taken more adequately and regularly by urban subjects.

Table 2. **Common presenting symptoms of the elderly**

| Presenting Symptoms | Urban (N=313) | Rural (N=49) | Total (N=362) |
|---|---|---|---|
| Pain / Swelling of Joints | 119 (38.0) | 13 (26.5) | 132 (36.5) |
| Limitation of Movement | 70 (22.4) | 3 (6.1) | 73 (20.2) |
| Indigestion / Heart Bum | 57 (18.2) | 7 (4.3) | 64 (17.7) |
| Backache | 48 (15.3) | 15 (30.6) | 63 (17.4) |
| Excessive Tiredness /Weakness | 56 (17.9) | 6 (12.2) | 62 (17.1) |
| Breathlessness | 51 (16.3) | 8 (16.3) | 5.9 (16.3) |
| Headache | 48 (15.3) | 1 (2.0) | 49 (13.5) |
| Cough | 36 (11.5) | 3 (6.1) | 39 (10.8) |
| Giddiness / Fainting | 30 (9.6) | 5 (10.2) | 35 (9.7) |
| Frequency / Urgency | 30 (9.6) | 3 (6.1) | 33 (9.1) |
| Change in Bowel Habits | 29 (9.3) | 3 (6.1) | 32 (8.8) |
| Itching / Infection of Skin | 24 (7.7) | 4 (8.2) | 28 (7.7) |
| Pain / Difficulty in Urination | 22 (7.0) | 5 (10.2) | 27 (7.5) |
| Chest Pain | 20 (6.4) | 6 (6.2) | 26 (7.2) |
| Blurring of Vision | 21 (6.7) | 1 (2.0) | 22 (6.1) |
| Pedal edema | 20 (6.4) | - | 20 (5.5) |
| Wheezing | 15 (4.8) | 2 (4.1) | 17 (4.7) |
| Nasal Congestion | 15 (4.8) | - | 15 (4.1) |
| Others | 48 (15.5) | 6 (12.2) | 54 (14.8) |

Morbidity among urban subjects was higher (90.7%) than rural (77.6%). Table 2 reveals the five common presenting symptoms of the elderly were: pain / swelling of joints (36.5%), limitation of movements (20.2%), indigestion/heartburn (17.7%), backache (17.4%), excessive tiredness/weakness (17.1%). Most common diseases in order of their magnitude were hypertension (58%) joint pains/arthritis (50.5%) cataract (19.1%), gastritis (17.7), deafness (13.5%) followed by diabetes mellitus (12.2%), as shown in Table 3. Hypertension, gastritis, diabetes mellitus and arthritis were more common illnesses in urban area whereas anemia (67.76%) and cataract (20%) were more common in rural population.

Table 3. **Morbidity profile (system wise) among elderly**

| ICD Coding | SYSTEM | URBAN (N=313) | RURAL (N=49) | TOTAL (N=362) |
|---|---|---|---|---|
| | RESPIRATORY | | | |
| 490 | Br. Asthma / COPD | 28 (8.9) | 03 (6.1) | 31 (8.6) |
| | CVS | | | |
| 701 | Hypertension | 192 (61.3) | 18 (36.7) | 210 (58.0) |
| 410 | Myocardial Infarction | 31 (9.9) | 01 (2.04) | 32 (8.8) |
| | NERVOUS SYSTEM | | | |
| 320 | CNS. Diseases | 13 (4.1) | 03 (6.1) | 16 (4.4) |

| 430 | Stroke | 07 (2.2) | 01 (2.04) | 08 (2.2) |
|---|---|---|---|---|
| | G I T | | | |
| 530 | G I T diseases | 43 (13.7) | 08 (16.3) | 51 (16.3) |
| | GENITO URINARY SYSTEM | | | |
| 580 | Urinary system | 09 (2.9) | - | 09 (2.5) |
| 360 | DISEASE OF EYE | 65 (20.8) | 04 (8.16) | 69 (19.1) |
| 366 | CATARACT | 57 (18.2) | 10 (20.4) | 67 (18.5) |
| 389 | DEAFNESS | 49 (15.6) | 0 | 49 (13.4) |
| 680 | SKIN DISEASES | 19 (6.1) | 01 (2.04) | 20 (5.5) |
| RINAL | ENDOC DISEASES | 03 (0.9) | - | 03 (8.3) |
| ES | DIABET MELLTUS | | | 44 (12.2) |
| 710 | OSTEOARTHRITIS | 159 (50.8) | 24 (49.0) | 183 (50.5) |
| | OTHERS | 12 (3.8) | 0 | 12 (3.3) |

*Others : BHP (1.4%), Blindness (0.8%) & Accidents (1.1%)*

Except for gastritis, the prevalence of common problems like hypertension, arthritis, cataract, deafness and diabetes mellitus was higher in females (Table 4). Prevalence of hypertension and diabetes was more in age group of 65-74 years. In rest of the commonly observed illnesses, prevalence increased with the age.

Table 4. **Sex distribution of common diseases among elderly**

| Morbidity | Male N=153 | Female N=209 | Total N=362 |
|---|---|---|---|
| Anaemia | 51(33.33) | 196(93.77) | 247(68.2) |
| Hypertension | 82(53.59) | 128(61.24) | 210(58.0) |
| Osteoarthritis | 62(40.52) | 121(57.89) | 183(50.55) |
| Cataract | 23(15.03) | 44 (21.05) | 67 (18.51) |
| Heart burn/Gastritis | 29(18.95) | 35 (16.74) | 64 (17.67) |
| Deafness | 12(7.84) | 37 (17.7) | 49 (13.53) |
| Diabetes mellitus | 8 (5.22) | 36 (17.22) | 44 (12.15) |

It was also observed in the study that 13.3% of elderly were hospitalized during last one year which was more in urban subjects. Thirty percent of subjects had undergone at least one surgery in their lifetime and only fifteen percent of elderly had received tetanus toxoid immunisation in the past five years.

Table 5. **Results of Haemoglobin, Random Blood Sugar and ECG among elderly**

| Hb (gm%) | Urban N=311 | Rural N=49 | Total N=360 |
|---|---|---|---|
| <5 | 3(0.96) | 8(16.3) | 11(3.0) |

| | | | |
|---|---|---|---|
| 5-10 | 134(42.8) | 17(34.7) | 151(41.7) |
| 10-12 | 75(24) | 10(20.5) | 85(23.5) |
| >12 | 101(32.2) | 14(28.5) | 115(31.8) |
| RBS mg% | | | |
| <180 | 244(78.4) | 41(83.7) | 285(79.2) |
| >180 | 67(21.6) | 8(16.3) | 75(20.8) |
| ECG | N=294 | N=48 | N=342 |
| Normal | 200(68.0) | 31(64.60) | 231(67.5) |
| Abnormal | 94(32.0) | 17(35.4) | 111(32.5) |

Table 5 reveals that 31.8% of the subjects had normal Haemoglobin (of over 12 gm%) whereas in the remaining 68.2% anaemia was prevalent in different severity. Random blood sugar above 180 mgm% was observed in 20.8% of the elderly. Similarly, different abnormalities were noticed in ECG recording among 32.4% of the elderly.

## DISCUSSION

The present community based study in the Union Territory of Chandigarh with over 0.8 million population[5] recorded a high prevalence of morbidity (88.9%) besides two-third of the study population was having anaemia. A study carried out in Southern part of India reported similar results that is a prevalence of 82.9% in the age group of 60 years and above[6]. The present study included the geriatric population of 65 years and above as considered by WHO[3]. It is important to make a cut off at 65 years for making global comparisons. This geriatric age group constituted 5.47% of total population in Chandigarh. WHO reported a proportion of 5% in developing and 15 % in the developed world[3].

It was observed that average number of illnesses per person was 1.79 and it was higher in urban community, which may be due to a higher prevalence of hypertension and myocardial infarction among them. Other studies among elderly in North and South India reported it as 2.62[7] and 2.42, respectively[6]. The presenting symptoms of the elderly are significant because patients report to health care providers with these ailments. Thus, health workers and general physicians should be aware of the underlying diseases related to these symptoms. The presenting symptoms of the same disease may vary in elderly in comparison to younger population. Most common symptoms in order of their magnitude were pain/swelling of joints, limitation of movements, indigestion/ heartburn and excessive tiredness.  Prevalence of presenting symptoms did not match with the morbidity profile because many presenting symptoms are not necessarily system specific eg. heart burn in elderly could be the symptom of GIT or CVS.  Breathlessness could be a presenting symptom of anaemia, hypertension or bronchial asthma. Many of the diseases were detected on examination and investigations which the patient did not present as specific symptom. Therefore, the purpose of highlighting the problem presenting symptoms is to make the treating physician understand that presenting symptoms and actual disease may not be co-relating.

Anaemia was the commonest with over two third population suffering from it. The present study considered the haemoglobin level of 12 gm% and below as anaemia for both males and females[8]. Anaemia in the elderly may be multifactorial in etiology as nutritional, physiological and pathological problems. It was observed that anemia was more in elderly females. The higher prevalence of anaemia among women in the reproductive age group is related to multiple pregnancies, nutritional imbalance, menstruation and other gynaecological problems. Therefore, the resulting anaemia in the reproductive age group continued to exist in elderly women, in absence of any corrective measures. Fifty eight percent of elderly were suffering from hypertension in accordance with the WHO report[3]. The present study considered a person to be hypertensive with level of blood pressure higher than 140/90 mm of mercury as per the WHO criteria[9]. The presence of hypertension among the elderly in urban areas was about twice that in rural areas. It could be because of sedentary and modern life style and stress in urban areas. Hypertension was more in females as compared to males. Similar results were also reported by other authors[6,10]. Nearly one third of the study population had abnormal ECG recordings. It has been estimated that approximately one quarter of all deaths in developing countries and almost half of all deaths in developed countries are attributable to cardiovascular diseases[3].

A high prevalence of arthritis / joint pain in the current study especially among females was also reported in other studies[6,7]. Thus reflecting the hard life faced by women who never retire from household work unless totally disabled.

Nineteen percent of subjects were suffering from immature and mature senile cataract. It was more common in females and the prevalence increased with the rising age. These results were in accordance to another study[11]. Cataract was found to be more common in rural population which may be due to increased exposure to ultravoilet radiation during long hours of work in open fields[12]. The prevalence of blindness in India is 14.9 per thousand population[12]. Eighty percent of this blindness is due to cataract alone[11]. National blindness control programme has an important role in reducing the quantum of cataract in the community by organising eye camps[13]. A number of elderly were suffering from Gastritis because of poor nutrition, increased use of non-steroidal analgesics and indigestion owing to decreased physical activity. It was found to be more common in males, similar to the results of other study[7]. Presence of suspected diabetes mellitus in the elderly further reflects the increasing life-style diseases in the community. And it was again almost three times in females of that of males. In the term of health status, difference between the male and female are clearly explicit in those females who have higher rate of morbidity. In the process of caring and nurturing of other members of the family women in India, invariably tend to neglect or overlook their own well being. Prevalence of high morbidity among elderly needs strengthening of geriatric health care services in accordance with the common existing problems in the community. Preventive, curative and rehabilitative programmes for the elderly are required for the control and management of later part of the life.

**CONCLUSION**

**The study among elderly in Chandigarh, India has highlighted a high prevalence of morbidity and identified common existing medical problems like anaemia, arthritis, hypertension, deafness, gastritis and diabetes mellitus. As there is a rapid expansion in number of elderly population, there is an urgent need to develop geriatric health care services in the developing countries like India and provide training to health care providers to manage the commonly existing health problems in the country.**

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