# Morbidity Profile of Rural Geriatric Population in North India: A Community Based Cross-sectional Study

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**Abstract**

The current cross-sectional study was conducted over a period of on eyear. Eight villages were chosen from Miran Sahib zone of R.S Pura block using simple random sampling. A pre-designed, pre-structured and validated questionnaire was applied to all persons aged ?60 Years. A total of 418 subjects (191 males and 227 females) comprised the study population.64.40% of the respondents belonged to 60-69 year age group. Among the morbidity distribution in the study population, visual impairment (54.06%) was the most common, followed by hypertension (35.89%), arthritis (34.21%), diabetes mellitus (12.92%) and chronic obstructive pulmonary disease (5.50%). COPD was higher in males and arthritis was higher in females and the gender disease association was found to be statistically significant (p<0.05). The results have shown high morbidity in the study population especially of visual impairment and cardio-vascular diseases. Respiratory diseases especially COPD morbidity was higher in males, while arthritis morbidity was more in females.

**Key Words**

Morbidity Profile, Geriatric Population, Rural Area

## Introduction

Ageing is defined as a progressive, generalized impairment of functions resulting in the loss of adaptive response to stress and growing risk of age associated diseases, resulting in progressive increase in age specific mortality (1) which has in turn lead to the decrease in the life expectancy. It is seen that the life expectancy of those born in 1900 was 45 years as compared to the present life expectancy of 78 years in United States and 65 years in India (2).

People aged 60 years and above are considered as the "elderly population" by the United Nation (UN) (3). The rapidly increasing speed at which the overall population is ageing is causing serious concern in all countries of the world. It is projected that by 2050 world population of those aged 60 years and above will reach 2.1 billion which will be 22% of the total world population and 80% of them will be living in low to middle income countries by 2050 (4). In India the elderly population as per 2011 census (5) was 8% which is expected to increase to 12.4 % by 2026.

Problems faced by geriatric age group are diverse however the three areas where the impact is felt most are health, economic and social. It has been aptly summarized by WHO as "Developingcountries will become old before they become rich while industrialized countries became richwhile they were growing old."The implication of ageing population for the individual, family, community and society in India in future is going to be enormous. Though there are many chronic diseases affecting elderly but among them the common chronic

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diseases are hypertension, diabetes mellitus, diseases of respiratory and musculoskeletal system and visual problems.

Presently only limited data is available on problems of elderly in India which is essential to develop, plan and evaluate the programmes for aged. Obtaining information and then analysis of the existing situation was required so as to promote preventive, curative as well as rehabilitative services for the elderly population.In the past no such studies have been carried out to assess the morbidity pattern and to study the socio-demographic profile of the elderly population in the rural area of Jammu and given the importance of this vulnerable age group, this study was conducted to understand and to evaluate the health problems of this population.

**Material and Methods**

A cross sectional study was conducted over a period of one year from 1st November 2012 to 31st October 2013, among geriatric population (aged 60yrs and above) in a rural area of Jammu district under blockRanbir Singh Pura(R. S. Pura), which is a field practice area of Department of Community Medicine, Government Medical College, Jammu.

In a two-step simple random sampling method, eight villages were selected in Miran Sahib zone.A clearance from the ethical committee of Government Medical College Jammu was sought before the study (IEC/ Pharma/Thesis/Research /54B/2012/2741dated 1.11.2012).

A house to house survey was conducted twice a week in all the villages under study area. A pre-designed, pre-tested and semi structured questionnaire was administered to all the people aged 60 years and above afterobtaining their consent.

Socio economic status was classified using Modified UdayPareek Scale. A general physical examination was followed by systemic examination with respect to specific diseases like Hypertension, Chronic Obstructive Pulmonary disease (COPD), Arthritis and also for Diabetes and Visual problems.

Those already diagnosed as cases of hypertension, arthritis, COPD and diabetes mellitus were taken as already confirmed cases..Hypertension was diagnosed

when the systolic blood pressure was >140 mm Hg and diastolic blood pressure is > 90 mm Hg (6). Similarly the person was diagnosed as Diabetic in accordance with WHO criteria of fasting blood glucose level (FBS > 126) (7) Visual acuity was tested using Snellen's visual acuity chart (Type E). For assessing visual acuity the person was classified according to WHOclassification (8).

The data thus collected, was compiled, tabulated, analyzed and interpreted using appropriatestatistical techniques.

**Results**

Majority (64.59%) of elderly population falls in age group of 60-69 years and only 15.1% of people were aged 75 years and above. The total number of geriatrics decreased as the age group advanced. (*Fig.1*). As depicted in Fig 2, majority of study population belonged to middle and lower middle class i.e78.7% and least in upper middle (6.94%) followed by BPL (3.82%). Among cardiovascular morbidities, most common was hypertension (35.88%) and least common was atrial fibrillation (1.19%) (*Table1*). Regarding respiratory morbidities, more cases (5.50%) were of COPD and least were having pulmonary tuberculosis (1.91%). COPD was higher in the males (*Table 2*) Most common(34.21%) musculoskeletal morbidity was Arthritis (Osteoarthritis, Rheumatoid and Gouty arthritis)with kyphosis as the least common (1.91%). Arthritis prevalence was more common in females the association was highly statistically significant (*Table 3*). The prevalence of diabetes mellitus in the study population was 12.92% with higher percentage in females suffering from the disease as compared to males (*Fig 3*). Majority of study population had low vision (47.63%), and only 6.45% of them were blind (*Table 4*).

**Discussion**

Altogether 418 geriatric people including 191 males and 227 females were surveyed. The present study found out that majority of elderly (64.40%) population were in the age group of 60-69 years and as the age increased their proportion kept on decreasingas only 7.45% were in the age group of 80 years and above. Our findings concur with rural studies by RamadurgU Y *et al*,(9) Ray K P *et al*,(10). However even in an urban area, similar

*Table 1. Distribution of Cardiovascular Diseases in the Study Population on the Basis of Sex*

| Cardiovascular disorder | Males N(%) | Females N(%) | Total N(%) | P value |
|---|---|---|---|---|
| Hypertension | 69 (36.12) | 81 (35.68%) | 150 (35.89) | p=0.92 |
| Ischemic heart diseases | 9(4.71) | 14(6.16) | 23(5.50) | p=0.51 |
| Atrial fibrillation | 2(1.04) | 3(1.32) | 5(1.19) | p=0.79 |
| Stroke | 8(4.18) | 4(1.76) | 12(2.87) | p=0.13 |
| Total | 191 | 227 | 418 | |

*Table 2. Sex-Wise Distribution of Respiratory Diseases*

| Respiratory disease | Males N (%) | Females N (%) | Total N (%) | P value |
|---|---|---|---|---|
| COPD | 16 (8.37%) | 7 (3.08%) | 23 (5.50%) | p=0.01 |
| Pulmonary Tuberculosis | 5(2.61) | 3(1.32) | 8(1.91) | p=0.33 |
| Bronchial asthma | 13(6.81) | 6(2.64) | 19(4.55) | p=0.04 |
| Pneumonia | 11(5.76) | 6(2.64) | 17(4.07) | p=0.10 |
| Past pulmonary tuberculosis infection | 3(1.57) | 7(3.08) | 10(2.39) | p=0.31 |

*Table 3. Distribution of Musculoskeletal Problems Among Male and Female in Study Population*

| Musculoskeletal problems | Males N (%) | Females N (%) | Total N (%) | P value |
|---|---|---|---|---|
| Arthritis | 38 (19.89) | 105 (46.26) | 143 (34.21) | <0.0001 |
| Low backache | 13(6.80) | 42(18.50) | 55(13.15) | 0.0004 |
| Fracture | 5(2.61) | 12(5.28) | 17(4.07) | <0.08 |
| Shoulder pain | 14(7.32) | 19(8.37) | 33(7.89) | 0.08 |
| Kyphosis | 3(1.57) | 5(2.20) | 8(1.91) | 0.63 |

*Table 4. Distribution of Study Population According to their Visual Acuity\* Using Snellen Chart*

| Vision | | Males n (%) | Females n (%) | Total n (%) |
|---|---|---|---|---|
| Normal | | 88 (46.07) | 104 (45.81) | 192(45.93) |
| Low Vision | Cat I | 78(40.84) | 90(39.65) | 168(40.19) |
| | Cat II | 13(6.81) | 18(7.93) | 31(7.44) |
| Blindness | Cat I | 6(3.14) | 13(5.73) | 19(4.54) |
| | Cat II | 6(3.14) | 2(0.88) | 8(1.91) |
| | Cat III | 0(0) | 0(0) | 0(0) |
| Total | | 191 (100) | 227 (100) | 418 (100) |

*\*WHO classification of Blindness*                    *P=0.50*

age wise distribution pattern was also reported by Shashi Kant *et al.*(11) These studies elicit uniform age distribution in geriatrics irrespective of their rural/urban background.

Gender wise distribution of the study population revealed that 45.69% were males while 54.31% were females and our results are in agreement with those reported by Mundada V *et al* (12) and most probable reason for it being that females are known to live longer than males biologically.

The results of the current study revealed that majority of study population belonged to middle and lower middle class (78.7%) and least in upper middle and BPL (3.82%). Similar results were reported by Niranjan G V *et al,*(13).

The morbidity profile in the current study population was found as follows: Visual impairment (54.06%), Hypertension (35.89%), Arthritis (34.21%), Diabetes (12.92%) and Chronic Obstructive Pulmonary Disease (5.50%).

Among the cardiovascular diseases, hypertension was the most common, with overall prevalence of 35.89% and almost similar distribution between males and females. Our results are in agreement with those reported

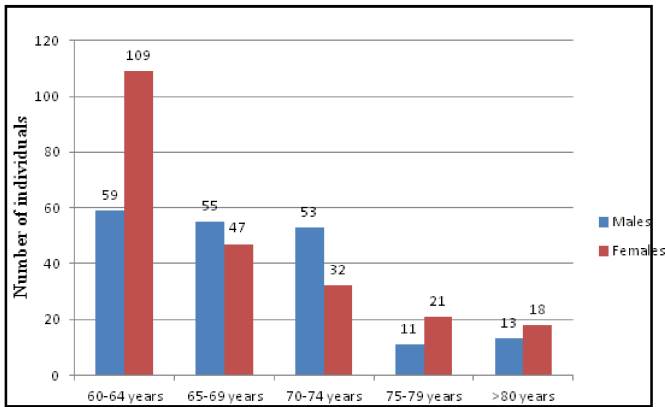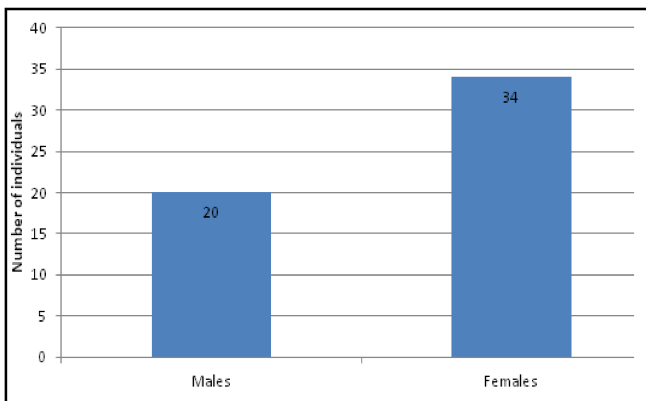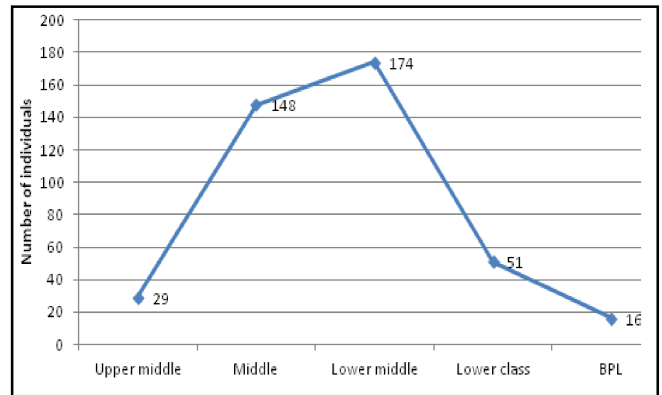*Fig 1. Age Wise Distribution of Study Population*



*Fig 3. Sex Distribution of Diabetes Melitus*



*Fig 2. Distribution of Study Population as per socioecnomic status*



prevalence of arthritis in females has been attributed to the hormonal changes after menopause.

The prevalence of diabetes mellitus in the current study was 12.92% with higher prevalence in females as compared to males, but this difference was not statistically significant (p>0.05). The finding of the present study are in agreement with those reported by Lena A *et al* (21) in rural area of Karnataka. However a higher prevalence of 18.8% and 36% were reported by Singh A R *et al* (22) and Radhakrishnan S *et al.* (23)

In the present study, nearly half of the study population had lower vision (47.63%) and only 6.45% were blind which concur with those reported by Kasthuri A(24). However contrasting results were reported byMarmammula S *et al* (25) and Banker K *et al.*(26)

Recommendations:A regular screening program for the detection of chronic diseases in the geriatric people is the need of the hour. The pattern of geriatric health problems have different characteristics and hence require a specific type of screening programme. In all primary health centers, need specific registry to provide data base for efficient and effective health services including follow up. Geriatric clinics should be established at major referral hospitals. Geriatric as specialty should be started in all major health care institutions.

**Conclusion**

The study results have shown 45.45% of geriatrics were having cardio-vascular related problems followed by 21.53% of respiratory disorders and 61.24% of musculoskeletal disorders. Diabetes mellitus and blindness was 12.92% and 06.60% respectively. The study provides valuable data to plan services and programmes for betterment of geriatric people whose percentage in the population is increasing.

byKhanamM A*et al*, (14) Bhatt R *et al* (15) and Kakkar R *et al.*(16). Among the respiratory system, most common morbidities were chronic obstructive pulmonary disease (COPD) (5.50%), bronchial asthma (4.55%) and Pulmonary Tuberculosis (1.91%). The proportion of COPD cases in males (8.37%) was more than females (3.08%), and it was statistically significant. (p< 0.01).The results concurwith those reported by Sharma D *et al.*(17)

Among musculoskeletal disorders most common morbidity was Arthritis and Low back ache (LBA). The overall morbidity with regard to arthritis was 34.21% and frequency of arthritis in females (46.26%) was more as compared to males (19.89%), and this association was statistically significant (p< 0.0001). Almost similar pattern was observed in a study conductedby Sharma MK *et al.*(18) However, in contrast to the results of the current study, high prevalence of arthritis was reported in many other studies including Khanam M A*et al* (14), Vidyavati Ugranet *et al*, (19), Biswas S *et al.*(20). The higher

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