

# Medico Social Study of Aged Persons: A Case Study from Serampore City

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## Abstract

Ageing is a biological process, experienced by mankind. Ageing is a dynamic process, determined by the relative size of the younger and older. However, concern for Ageing of population is a relatively new phenomenon, which has raised due to significantly large increase in the number and proportion of aged persons in the society. The phenomenon of population Ageing is becoming a major concern for the policy makers all over the world during the last two decades. Ageing of population is affected due to downward trends in fertility and mortality i.e. due to low birth rates with long life expectancies. Life expectancy at birth is projected to continue to rise in the coming years all over the world. The aged population has specific health problems that are basically different from those of adults or young persons. Most diseases in the aged are chronic in nature cardiovascular, arthritis, stroke, cataract, deafness, chronic infections, cancer. Disease process is usually multiple. Availability and utilization of health services is an important determinant of the health status of population. The needs for health services tend to vary directly with the age of the individuals. The older the one gets, the more health care he needs. Although the aged people face multiple health problems, even then, they do not consider seeking medical aid and as a result, many conditions remain unreported and untreated till they become complicated. This emphasizes the need for strengthening of health care system for elderly population. According to Paul Wallace, all individuals should be prepared to face later years in life within their own limitation gloriously.

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**Index terms**— morbidity, elderly population, ageing, physical disabilities.

## 1 I. Introduction

It is difficult to define the onset of old age. Biologically, Ageing begins as early as puberty and is a continuous process throughout adult life. Socially, the characteristics of members of society who are perceived as being old vary with the cultural settings and from generation to generation. Economically, the elderly are sometimes defined in terms of retirement from the work force. Chronologically, age has long been used as an indicator of expected residual life span. Recent changes in mortality rate have changed the predictive significance of chronological age and refined health care has shifted the emphasis from prolonging life expectancy to increasing the expectancy free of disability.

Ageing is generally defined as a process of deterioration in the functional capacity of an individual that results from structural changes, with advancement of age. High fertility and declining mortality are the major factors responsible for population increase in most countries of the world, especially the developing ones. Longevity has increased significantly in the last few decades mainly due to the socio-economic and health care developments. These factors are responsible for higher numerical presence of elderly people leading to higher dependency ratio. Demographers, researchers and responsible citizens have started to think about the aged population and its

problems because of the demographic transition in many countries of the third world now taking place in a much shorter period of time. Ageing of the population will be one of the major challenges of the near future.

In USA, UK and other western countries, the attainment of the age of 65 years has been considered for the purpose of classifying aged persons, whereas in India, it is from 60 years (Vijaykumar S et al, 1999). The elderly sub-population referred to as the "young old" (60-74), the "old" (75-84), and the "old-old" (above 85) (Swash Michael, 1995).

## 2 II. Material and Methods

Serampore is an important city of Hooghly district, state of West Bengal, India. At the time of 2011 census, the population within the Municipal area of Serampore was 181,842. Study was conducted in randomly selected 32 areas distributed in Serampore city including Urban and Slum areas. List of zones and wards including Slum and Urban areas were obtained from Municipality of Serampore. From eight zones of Serampore city by simple random technique, four zones were selected. Out of the four zones, four wards were selected by simple random technique. From each ward, one slum area and one urban area were included in the study using simple random technique. A total of 32 areas were included in this study. Door to door survey was conducted. From each area, 20 elderly were included in study.

Sampling method: Multi stage simple random sampling technique.

## 3 Sample size: 640

Sample size was calculated by using statistical formula,  $n = Z^2 \cdot l \cdot a / 2 \cdot P \cdot (1-P) / d^2$  where  $P$  = Morbidity Problems (50%),  $d$  = Absolute Precision (4%), Confidence level = 95%

As there was no baseline study in Serampore, Chhattisgarh, therefore it was not possible to estimate 'P', so a figure of 0.5 (50%) was used. This is the 'safest' choice for the population proportion, since the sample size required is largest when  $P = 0.5$  (50%) [128].

A total of 600 figures come using statistical formula. For making uniformity, 20 subjects from each of 32 areas were selected that comes 640. Therefore, a total 640 subjects were included in the study. 4) To make suitable recommendations on the basis of the study.

## 4 III. Objectives of the Study

## 5 IV. Observations and Discussion

Descriptive cross-sectional observational study was undertaken among the elderly population in Serampore city during the period July 2015 to June 2016. Information was collected from 640 elderly persons. The findings of the present study is an attempt to explore the morbidity pattern and health-care seeking behaviour among elderly population.

The findings of the study are discussed under following headings: Above table-1 shows, out of total study population (640 elderly) prevalence of morbidity was 95.31% (610). Prevalence among females was 98.92%, whereas among males was 90.26%. Morbidity was statistically positively associated with advancement of age. Among females, 98.76% in young old, 100% in both old and very old age group were morbid; whereas in males, 88% young old, and 97.01% of old were morbid. There was no one in very old age group in male elderly population. Present study shows that prevalence of morbidity was more in females than males. In all age groups, prevalence of morbidity among females was more in comparison to males. A community based study from rural area of West Bengal observed that almost all the elderly (96.95% males and 98.15% females) were suffering from one or more diseases at the time of study. The difference was small and statistically not significant ( $z=0.54$ ,  $P>0.05$ ). All elderly aged 70 years and above were found to be diseased. Only five elderly (2.45%) were well at the time of study in the age group of 60-69 years. All elderly in more than 80 years age group were suffering from some disease. Above Table-2 shows, out of total morbid subjects ( $n=610$ ), many elderly had multiple system involvement and many had more than one disease in a particular system. Most common system involvement were Gastro intestinal system (GIS) (82.62%), Eye (79.83%), Cardiovascular system (52.45%), Locomotor system (40.16%), Ear 34.59%, Metabolic & Endocrine system (27.54%), Respiratory system (16.72%), Nervous system (11.96%). Skin & Subcutaneous tissue involvement in (7.54%), Genito urinary system (7.37%), and others (3.27%). Others included Anaemia, Enteric fever, Malaria, Generalized weakness. In most of the systems, prevalence of morbidity was more in female elderly than male elderly, except Gastro-intestinal system, Nervous system, and Genito-urinary system, where prevalence was more in males than in females. P Ray et al (2013) reported that 67.2% elderly had GIS disorder, followed by involvement of eye, cardiovascular and musculoskeletal system in 49.5%, 46.1% and 29.9% elderly respectively.

Respiratory system was also involved in 29.2% study population. In 15.7% elderly there was Skin and subcutaneous tissue disease. Genito-urinary system, nervous system and ENT problem was seen in 9.8%, 5.4% and 4.9% study population. In 24% elderly, there were other diseases. Shradha K et al (2012) studied that most common disorder reported among elderly was eye diseases (51.7%) followed by endocrine, nutritional and metabolic diseases (38.4%), diseases of circulatory system (33.1%), disorders of oral cavity (32.3%), musculoskeletal disorders (30.2%) and diseases of respiratory and digestive system was reported about 10% by

the geriatric people. Rahul Prakash et al (2004) in a study in urban area of Udaipur, Rajasthan India observed that major health problem as per diagnostic group was Eye problem (70%), Hypertension (48%), Psycho-social problems (42%), Respiratory problems (36%), and rest others were Musculoskeletal disorders in 14.6%, Nervous system disorders 8.6%. Above Table-4 shows, among total morbid elderly, prevalence of Cardio vascular system morbidity was 52.45%; prevalence was more in females (56.09%) than males (46.88%). Out of total morbidity related with Cardio vascular system, 52.45% had Hypertension, 0.81% had Congestive cardiac failure, and 0.16% had acute myocardial infarction. Prevalence of Hypertension was more in females (56.09%) than males (46.88%). There was positive association with advancement of age, 27.87% in young old to 100% in very old age group. Shradha K et al (2012), in their study in urban elderly at Mysore, Karnataka, India observed that 33.1% had morbidity of Cardio vascular system, more in males (34.3%) than females (32.3%). Of all the Cardio vascular morbidity, 29.3% had Hypertension, 30.45% in males whereas 28.55% in females. In present study, prevalence is higher than the observation made by Shradha K et al (2012), and it may be due to the absence of Class I socioeconomic group in Shradha K et al (2012). Prakash Rahul et al (2004), in their study in urban area of Udaipur, Rajasthan India observed that 48% elderly had Hypertension; more in females (54.5%) than males (44.2%). Out of total 640 examined study population 320 (50%) had Hypertension. Out of the total hypertensives, 42.18% were newly diagnosed during the study and 57.81% were Known Hypertensives. Of the known hypertensive cases, 60% were females and 40% were males. Of the known hypertensives, 82.70% were receiving anti-hypertensive treatment; out of which 58.16% were females and 41.83% were males. Statistically significant difference was observed between those adequately treated (41.17%) and inadequately treated (58.82%). Females (76.19%) were more adequately treated than males (23.80%). Out of the total hypertensive population, 35.93% had family history of Hypertension. Out of total female hypertensives, 36.71% had family history of Hypertension whereas among male hypertensives, 34.51% had family history of Hypertension. Above Table-5 shows that 43.07% of current alcoholic were hypertensives, whereas 52.89% among non-alcoholic were hypertensives. Among ex-alcoholics, none was hypertensive. The relation between alcohol and Hypertension was found to be statistically significant.

In another study by Anupam Prakash (1992) in rural area in Delhi, it was observed that 5.23% persons were presently taking alcohol while 6.04% were ex-alcoholic. The relation between alcohol and Hypertension was found to be statistically significant (Chi square cal > Chi square tab). Out of 54 hypertensives, 16.67% were current alcoholics as compared to 558 non-hypertensives, amongst whom 4.13% were consuming alcohol presently.

In present study, finding was different from study done by Anupam Prakash (1992), there was negative association of hypertension with alcohol, may be due to more number of females who were mostly non-drinker in comparison to males. Above Table-6 shows that there was a total of 18.90% current smokers; out of which, 18.75% were hypertensives. 13.59% were ex-smokers, out of which 33.33% were hypertensives. A large number of elderly were non-smoker (67.50%), out of which 53.47% were hypertensives. Anupam Prakash et al (1992) observed that there was statistically negative association of hypertension with smoking. Out of total current smokers, 57.41% were hypertensive current smokers, whereas 12.96% ex-smokers were hypertensives, and 29.63% of non-smokers were hypertensives though smoking is a known risk factor for hypertension, but in present study negative association of hypertension with smoking was statistically significant. This indicates that there are some additional factors too responsible for hypertension.

Above Table-7 shows, the prevalence of Locomotor system disorder was found in 40.16% of the elderly. Prevalence was more in females (47.15%) than males (29.46%). The most common condition observed was Osteoarthritis (27.21%) which was more common in females (32.79%). The next common condition was Lumbar Disc Disease (13.11%) which was also more common in females (15.98%). 2.95% elderly had Frozen shoulder; it was also more common in females (4.06%) than males (1.24%). The least common condition was Cervical Spondylitis (0.65%), Rheumatoid arthritis (0.49%), and Psoriatic arthritis (0.16%). There was an increase in the prevalence of Osteoarthritis with age which can be explained on the basis of degenerative nature of the disorder and its cumulation with age. In present study, prevalence of Osteoarthritis among morbid population was, from 27.87% in young old, to 22.32% in old and 100% in very old age group.

P Ray Karmakar et al (2012), reported Locomotor system disorders in 29.90% of elderly. Out of the aged males, 23.7% and out of aged females, 35.5% had disease of Musculoskeletal system. Osteoarthritis was the most common manifestation (22.54%) in both sexes together. Hanger et al (1990) in their Christchurch study observed that 33.80% of the elderly had Locomotor system involvement, of which Osteoarthritis was in 14.20% of the elderly which is almost comparable to the figure in the present study (14.71%). Mc Donnell et al (1979) reported involvement of Musculoskeletal system in 19.0% of elderly in Leeds Metropolitan District.

In present study prevalence of Locomotor system was almost comparable to other study, especially Osteoarthritis which is almost comparable. One case of fracture forearm was observed. The overall prevalence of Rheumatoid arthritis was very low (0.46%) in the present study, which was found to be lower than that reported by P Ray Karmakar et al (2012), Raj (1971), and could be due to the fact that in present study proportion of very old population was very low. While Ehrlich et al (1970) had shown that this disease commenced after 60 years of age and flourishes as age advances. Chi-square = 0.807 (df 2, p = 0.667)

In present study, prevalence of metabolic and endocrine system disorders was 27.54%, among females 30.08% whereas in males 23.65%. Above table shows that, common metabolic disorder was Diabetes mellitus (24.26%), prevalence among females (26.01%) was more than males (21.57%), followed by Hypothyroidism (1.96%), more

in females (2.43%) than males (1.24%). Prevalence of gout was 1.31%, more in females (1.62%) than in males (0.82%). Most common illness was Diabetes mellitus (23.12%), followed by Hypothyroidism (1.87%) and Gout (1.25%). Hypothyroidism was more common in female elderly (2.41%) than male elderly (1.12%). In other study done by Prakash R et al (2004), observed that 3.33% of total elderly population had metabolic and endocrine disorders. All male elderly were affected. Anupam Prakash et al (1992), in a study in rural area in Delhi, observed that Thyrotoxicosis was present in 0.33% of total elderly population. In present study, a significant number of cases of Hypothyroidism may be due to iodine deficiency which is common in Chhattisgarh state. In present study, prevalence of Respiratory system disorders was 16.72%; among females prevalence was 18.97% whereas in males, 13.27%. Out of total Respiratory system disorders, common disorder was Acute Pharyngitis (6.22%), Chronic Obstructive Pulmonary Disease (COPD) 5.08%, Asthma (3.6%), Pneumonia (1.31%). Asthma was more common in females (5.42%) than males (0.82%). COPD and Pneumonia were more common in males than females. COPD among males was 7.46% whereas in females was 3.52%. Pneumonia among males was 2.90% whereas among females was 0.27%. One case of tuberculosis was reported. In another study, Rahul et al (2004) reported that 36% had respiratory diseases, more in males (41%) than females (27.3%). In present study, prevalence is more than the observation made by Rahul et al (2004). This may be due to more number of current male smokers than female smokers.

In another study by Prakash R et al (2004), reported that Asthma was the leading respiratory problem among both males and females followed by Coryza, Chronic bronchitis, Upper Respiratory Tract Infection (URTI) and Tuberculosis. Shradha et al (2012) observed that URTI, Acute Bronchitis, Bronchial Asthma were the major respiratory diseases. Present study shows that, prevalence of Nervous system disorders including Mental illness disorder was 11.96%; among males 14.52% whereas in females 10.29%. Out of total morbidity among nervous system including Mental illness, majority had Anxiety (6.39%) and Depression (6.39%), followed by Peripheral Neuritis (2.13%). The least common conditions were Migraine (1.80%), Tension type headache (TTH) 0.16%, Hemiparesis (1.31%), Hemiplegia (0.81%), one post op case of frontal lobe brain tumour. Prevalence of Anxiety and Depression was more in females than in males. In another study conducted by Rahul Prakash et al (2004), reported that prevalence of Nervous system disorder was 8.5%.

## 6 V. Conclusion

The present study is an endeavour to find out the morbidity pattern among elderly in Serampore city on a small scale of young growing state of West Bengal, along with the existing health practices and finally to suggest a pattern of health services suitable for the elderly population in the city. The study was conducted in 640 elderly subjects selected randomly from 32 areas including urban and slum areas from 8 zones and 77 wards of Serampore city. Elderly persons in the age group, 60 years and above were 63635 (6.3% of total population in Serampore city), out of which only 640 persons (267 males and 373 females) were included in the study. Elderly females 373 (58.28%) out-numbered elderly males 267 (41.71%). Majority of the elderly persons (81.71%) belonged to "young old" age group. Bulk 40.15% of the elderly persons received education upto higher secondary. Graduates and above was only 15.78%, out of which 83.16% were in urban whereas 16.83% were from slum areas.

36.40% of the elderly population belonged to socio-economic Class IV, followed by Class II. A large proportion (84.07%) was living in joint families and 15.93% in nuclear family settings. Only 5.93% were living alone. 51.09% of the elderly were themselves heading the family with males predominating. A large proportion 42.03% of elderly population was unemployed. The principle occupation of the persons who were currently employed in some gainful occupation was agriculture/ shop owner/clerical 11.25%, while 18.12% were professional including retired persons. A large proportion 48.28% was financially dependent on others. Only 14.84% were receiving old age pension. Out of total dependent, 66.66% were dependent on their children, 13.26% on grand children and 1.29% on spouse, 14.56% on others. A small proportion 33.59% was aware about various Government welfare schemes for the elderly. The geriatric population is a dependent population. Hence, health care delivery system should reorganize their timing other than routine schedule. Periodic comprehensive health check up, preferably twice a year must be carried out and primary health care delivery must be ensured to geriatric population.

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Figure 1: (

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| Age groups<br>(years)                    | Male     |        |       | No<br>Ex-<br>am-<br>ined | Female |       | Total       |        |       |
|------------------------------------------|----------|--------|-------|--------------------------|--------|-------|-------------|--------|-------|
|                                          | No       | Morbid | %     |                          | Morbid | %     | No examined | Morbid | %     |
|                                          | examined |        |       |                          |        |       |             |        |       |
| 60-74                                    | 200      | 176    | 88    | 323                      | 319    | 98.76 | 523         | 495    | 94.64 |
| 75-84                                    | 67       | 65     | 97.01 | 47                       | 47     | 100   | 114         | 112    | 98.24 |
| >85                                      | 0        | 0      | 0     | 3                        | 3      | 100   | 3           | 3      | 100   |
| Total                                    | 267      | 241    | 90.26 | 373                      | 369    | 98.92 | 640         | 610    | 95.31 |
| Chi-Square = 21.282 (df = 2, p < 0.0001) |          |        |       |                          |        |       |             |        |       |

Figure 2: Table - 1

|            |                                                                   |               |       |                  |       |              |     |
|------------|-------------------------------------------------------------------|---------------|-------|------------------|-------|--------------|-----|
| -          |                                                                   |               |       |                  |       |              |     |
|            | Respiratory system                                                | 32            | 13.27 | 70               | 18.97 | 102          | 16  |
|            | Nervous system                                                    | 35            | 14.52 | 38               | 10.29 | 73           | 11  |
|            | Skin& subcutaneous tissue                                         | 18            | 7.46  | 28               | 7.58  | 46           | 7.5 |
|            | Genito urinary system                                             | 29            | 12.03 | 16               | 4.33  | 45           | 7.3 |
|            | Others                                                            | 5             | 2.07  | 12               | 3.25  | 20           | 3.2 |
|            | Total                                                             | 852           | -     | 1398             | -     | 2250         | -   |
| Year 2016  | Note : Multiple system involvement was observed in many subjects. |               |       |                  |       |              |     |
| Volume XVI |                                                                   |               |       |                  |       |              |     |
| Issue IV   |                                                                   |               |       |                  |       |              |     |
| Version I  |                                                                   |               |       |                  |       |              |     |
| D D        |                                                                   |               |       |                  |       |              |     |
| D D )      |                                                                   |               |       |                  |       |              |     |
| F          |                                                                   |               |       |                  |       |              |     |
| (          |                                                                   |               |       |                  |       |              |     |
|            | 2 : Distribution of morbidity according to system of involvement  |               |       |                  |       |              |     |
|            | System of involvement                                             | Male (n= 241) |       | Female (n= =369) |       | Total n=610) |     |
|            |                                                                   | No            | %     | No               | %     | No           | %   |
|            | GIS                                                               | 211           | 87.55 | 293              | 79.40 | 504          | 82  |
|            | Eye                                                               | 192           | 79.66 | 295              | 79.94 | 487          | 79  |
|            | CVS                                                               | 113           | 46.88 | 207              | 56.09 | 320          | 52  |
|            | Locomotor t Ear                                                   | 71 83         | 29.46 | 174              | 47.15 | 245          | 40  |
|            |                                                                   |               | 13.60 | 128              | 34.68 | 211          | 34  |
|            | Metabolic and Endocrine system                                    | 57            | 23.65 | 111              | 30.08 | 168          | 27  |

Figure 3: Table -

Constipation (5.08%), Peptic Ulcer disease (2.29%), Gastro oesophageal reflux disease (1.14%), Acute gastro enteritis (1.14%). Most of the illnesses were prevalent among females than males except, Haemorrhoids and Gastro oesophageal reflux disease (GERD), which was prevalent among males.

This is comparable to P Roy et al (2012) who West Bengal .In another study done by Shradha K et al repor

| Table-4 : Distribution of diseases of cardio vascular system |              |       |                |
|--------------------------------------------------------------|--------------|-------|----------------|
| Diseases                                                     | Male (n=241) | %     | Female (n=369) |
| Hypertension                                                 | 113          | 46.88 | 207            |
| Acute Myocardial Infarction                                  | 0            |       | 1              |
| Congestive Cardiac Failure                                   | 2            | 0.82  | 3              |
| Total                                                        | 115          | -     | 211            |
| Chi-square = 0.594 (df = 2 , p = 0.743)                      |              |       |                |

| Diseases              | Male (n=241) | %      | Female (n=369) |
|-----------------------|--------------|--------|----------------|
| Haemorrhoids          | 3            | 1.24%  |                |
| Acute hepatitis       | 1            | 0.41%  |                |
| Inguinal hernia       | 3            | 1.24%  |                |
| Constipation          | 12           | 4.97%  |                |
| Acut Gastro Entritis  | 0            | 0      |                |
| Peptic Ulcer Disease  | 4            | 1.65%  |                |
| Gingivitis            | 2            | 0.82%  |                |
| Hydrocele             | 2            | 0.82%  |                |
| Attrition of tooth    | 158          | 65.56% |                |
| Enteric Fever         | 0            | 0      |                |
| Partial Edentulous    | 44           | 18.25% |                |
| GERD                  | 7            | 2.90%  |                |
| Carries tooth         | 0            | 0      |                |
| Submucosal fibrosis   | 1            | 0.41%  |                |
| Apthous ulcer         | 3            | 1.24%  |                |
| Others (Macroglossia) | 0            | 0      |                |
| Total                 | 240          |        |                |

[Note: Note: Multiple illnesses were observed in many<sup>7</sup> subjects. Volume XVI Issue IV Version I© 2016 Global Journals Inc. (US)]

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|                             |                |                |                       |            |            |    |
|-----------------------------|----------------|----------------|-----------------------|------------|------------|----|
| Smoking Status Current      | Present(n=320) | Hypertension % | Absent(n=320) (49.58) | 61 (33.33) | 58 (53.47) | 20 |
| Smoker Ex-smoker Non-smoker | 60 29 231      |                |                       |            |            |    |

|       |     |    |     |
|-------|-----|----|-----|
| Total | 320 | 50 | 320 |
|-------|-----|----|-----|

Chi-square = 11.758 (df = 2, p = 0.0028)

Diseases Fracture Fore-arm Tabled-7 : Distribution of diseases of locomotor system Male(n=241) Female(n=309)

|                      |    |        |     |
|----------------------|----|--------|-----|
| Lumbar Disc Disease  | 21 | 8.71%  | 59  |
| Osteo-Arthritis      | 45 | 18.67% | 121 |
| Frozen Shoulder      | 3  | 1.24%  | 15  |
| Rheumatoid Arthritis | 1  | 0.41%  | 2   |
| Psoriatic Arthritis  | 0  | 0      | 1   |
| Cervical Spondilitis | 0  | 0      | 4   |
| Total                | 72 | -      | 202 |

[Note: Note: Multiple illnesses were observed in many subjects. Chi-square = 8.388 (df = 6, p= 0.211) © 2016 Global Journals Inc. (US) Medico Social Study of Aged Persons: A Case Study from Serampore City]

Figure 5: Table - 6

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| Diseases          | Male(n=241) |        | Female(n=309) |        | Total(n=610) |        |
|-------------------|-------------|--------|---------------|--------|--------------|--------|
| Diabetes Mellitus | 52          | 21.57% | 96            | 26.01% | 148          | 24.26% |
| Hypothyroidism    | 3           | 1.24%  | 9             | 2.43%  | 12           | 1.96%  |
| Gout              | 2           | 0.82%  | 6             | 1.62%  | 8            | 1.31%  |
| Total             | 57          | -      | 111           | -      | 168          |        |

Figure 6: Table - 8

Year 2016  
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| Diseases          | Male (n=241) |       | Female (n=369) |       | Total (n=610) |       |
|-------------------|--------------|-------|----------------|-------|---------------|-------|
|                   | No           | %     | No             | %     | No            | %     |
| Acute Pharyngitis | 3            | 1.24% | 35             | 9.48% | 38            | 6.22% |
| LRTI              | 1            | 0.41% | 3              | 0.81% | 4             | 0.65% |
| Asthma            | 2            | 0.82% | 20             | 5.42% | 22            | 3.6%  |
| COPD              | 18           | 7.46% | 13             | 3.52% | 31            | 5.08% |
| Tuberculosis      | 0            |       | 1              | 0.27% | 1             | 0.16% |
| Pneumonia         | 7            | 2.90% | 1              | 0.27% | 8             | 1.31% |
| Laryngitis        | 1            | 0.41% | 5              | 1.35% | 6             | 0.98% |

Chi-square = 39.281 (df = 6, p < 0.0001)

Figure 7: Table - 9

| 10 : Distribution of diseases of nervous system |             |      |               |      |              |      |
|-------------------------------------------------|-------------|------|---------------|------|--------------|------|
| Disease                                         | Male(n=241) |      | Female(n=369) |      | Total(n=610) |      |
| TTH                                             | 1           | 0.41 | 0             |      | 1            | 0.16 |
| Migraine                                        | 1           | 0.41 | 10            | 2.71 | 11           | 1.80 |
| Hemiparesis                                     | 7           | 2.90 | 1             | 0.27 | 8            | 1.31 |
| Peripheral Neuritis                             | 12          | 4.97 | 1             | 0.27 | 13           | 2.13 |
| Post op case of frontal lobe brain tumour       | 1           | 0.41 | 0             |      | 1            | 0.16 |
| Hemiplegia                                      | 5           | 2.07 | 0             |      | 5            | 0.81 |
| Anxiety                                         | 9           | 3.73 | 30            | 8.13 | 39           | 6.39 |
| Depression                                      | 9           | 3.73 | 30            | 8.13 | 39           | 6.39 |
| Total                                           | 45          |      | 72            | -    | 117          |      |

Note: Multiple illnesses were observed in many subjects.  
 Chi-square = 47.062 (df = 7, p < 0.0001)

Figure 8: Table -



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