Epidemiological Study Of Life Style And Morbidity Profile of GeriatricPopulation In An Urban Community Of Pune

Sai Rohit Reddy[1*], Seema Patrikar[2], Rohan Reddy[3]

[1]MBBS, Armed forces Medical College, Pune
[2]Senior Lecturer in Statistics, Armed Forces Medical College, Pune-411 040
[3]Research Data Scientist, Fraunhofer USA, CESE.

Abstract

The population of India is expected to grow by 25% from 121.1 crores to 152.2 crores during the period 2011-2036, according to the latest report of 20th July, 2020 by the National Commission on Population (NCP), Ministry of Health and Family Welfare. The percentage of older persons above 60 years of age out of the total population is expected to increase from 8.4 to 14.9 percent, with an increase in numbers by more than double from 10 crores to 23 crores. With the increase in number and lifespan of older persons, there is an increased risk of diseases associated with old age particularly non-communicable diseases like cardiovascular diseases, chronic respiratory diseases, diabetes, eyesight conditions, etc., which significantly impact their quality of life.

Introduction: Over the last few years, the life expectancy of people has been greatly increasing globally. With increasing age, the population tends to get affected by various long term diseases such as cardiovascular illness, Stroke, cancer, diabetes, musculoskeletal disorders, mental illnesses, etc. These disabilities along with lack of adequate and affordable medical facilities, economic and social support, and gap in health care insurance coverage, greatly affect the quality of lives of elderly people. In these circumstances, the assessment of the morbidity profile of the elderly helps in bringing forward required interventions, to improve their health status and quality of life.

Aims: This study is undertaken with the aim to determine the association of socio-demographic and life style parameters and morbidity pattern of geriatric population of urban Pune.

Objectives: 1.To study the socio-demographic profile of elderly people 2.To study the morbidity pattern of geriatric population 3. To study few selected life style parameters like smoking status, alcohol usage, tobacco usage, BMI, physical activity and its association.

Methodology: The study was a cross sectional study carried out in the Urban Health Training Centre (UHTC) of the Armed Forces Medical College, Pune. The study included a sample size of 100 elderly people above the age of 60 years. Data on height, weight, blood pressure, Body Mass Index (B.M.I) and morbidity status as well as socio demographic parameters was collected and analysed using SPSS 22.

Results: 29% of the subjects reported some form of endocrine disorders, 34% of the subjects reported some form of nutritional disorders and a staggering 57% of the population has some form of cardiovascular ailments. Diseases of Oral Cavity were prevalent in 56% and 60% of the study subjects were reportedly suffering from various types of eye diseases.31% of the populations were suffering from problems related to hearing impairment, while diseases of Gastro Intestinal Tract were reported in 23% of the population, Respiratory diseases also seem to be a major morbidity factor, with 47% having some form of respiratory disorder. Disorders associated with Musculo-skeletal problems were witnessed in a vast 82% of the population.

Geriatric Syndromes: The most prevalent syndromes that existed in the population are- Cognitive impairment, Falls, Sleep Problems, Gait problems, Depression, Functional dependency, etc.

Discussion: The major morbidity categories in this population were – Musculoskeletal diseases (82%), Eye diseases (60%), closely followed by Cardio-

Vascular diseases (57%), diseases related to Oral cavity (56%), Respiratory diseases (47%), Nutritional disorders (34%), Hearing impairment (31%),Endocrine disorders (29%), diseases of GIT (23%), Skin diseases (14%),Uro-Genital diseases (7%) and diseases of CNS (3%). To summarise the present study, the overall morbidity in the study subjects, due to Joint pains (52%), remained high, followed by Hypertension (47%), Broken/stained teeth or both (39%), Refractive Error-37%,COPD- 32%, Anaemia (28%), Diabetes (24%) Cataract- 20% and Indigestion (14%). Most of the study population was affected with multiple geriatric syndromes. Cognitive impairment was the most prevalent geriatric syndrome found in 34% of subjects. The other syndromes observed in this study are - Falls (23%), Sleep problems (20%), Gait problems (20%), Depression (19%), Functional Dependency (7%), Incontinence (6%), Loneliness, Dementia, etc.

Conclusion: If ageing is to be a positive experience, longer life must be accompanied by continuing opportunities for health, participation and security. Assessment of the morbidity profile of the elderly in a particular area/region helps in having a better understanding of the present status, problem areas and gaps in the existing facilities, thereby paving the way for the provision of cost- effective services and the planning of feasible implementation strategies for intervention and care relevant to country's/region's needs. The findings of this study regarding major morbidity factors present in elderly population are more or less consistent with the earlier studies done in this area. However, among the geriatric syndromes, the higher incidence of Cognitive impairment in the study population could be due to the fact that, the sample is drawn from urban slums, comprising of mostly illiterates with no exposure to cognitive stimulants and enriched nutrition.

Introduction

Aging is a universal process. In the words of Seneca, "old age is an incurable disease". But more recently Sir James sterling Ross commented "you do not heal old age, you protect it, you promote it and you extend it. These are in fact the principles of Preventive Medicine.

Over the last few years, the life expectancy of people have been greatly increasing globally. In India, the average life expectancy is projected to be 67 years for males and 69 years for females, in the year 2011-16 [1]. According to UNDESA (United Nations Department of Economic and Social Affairs, 2008) data on projected age structure of the population, India had more than 91.6 million elderly in 2010 with an annual addition of 2.5 million elderly between 2005 and 2010. The number of elderly in India is projected to reach 158.7 million in 2025, and is expected to surpass the population of children below 14 years by 2050 [2]. A report jointly brought out by United Nations Population Fund (UNFPA) and HelpAge International says that India's population is likely to increase by 60 per cent between 2000 and 2050, but the number of elders, who have attained 60 years of age, will shoot up by 360 per cent. India has around 100 million elderly at present and the number is expected to increase to 323 million, constituting 20 per cent of the total population, by 2050 [3].

The emerging growth of the geriatric population in India will bring with it the associated burdens of morbidity and mortality across the country. With increasing age, the population tends to get affected by chronic conditions (diseases/disabilities). An analysis of morbidity patterns by age clearly indicates that the elderly experience a greater burden of ailments such as illness, sickness, injury, and poisoning compared to other age groups (National Sample Survey Organisation, 2006), across genders and residential locations [4]. Old age is not a disease in itself, but the elderly are vulnerable to various long term diseases such as cardiovascular illness, Stroke, cancer, diabetes, musculoskeletal disorders, mental illnesses,etc. From mild aches and pains to the most devastating illnesses, the elders face everything. They have multiple symptoms due to decline in various body functions.

The problems associated with aging of the population are that of absence of facilities for medical treatment and of providing economic and social support. Another problem is the gap in health care insurance coverage. Most coverage is only for 80 percent of the cost incurred and the patient is required to pay the remaining amount out of pocket or through a secondary insurance plan. This can be a problem if the elderly patient needs hospital care or skilled nursing care, the cost of which may run into several thousands to lakhs of rupees, which can easily and quickly place someone in medical debt. This leaves many elderly people out of the realm of health care coverage they need for lifestyle management and survival. In addition to age, their gender, marital status, religion, caste, education, economic independence, and sanitation all have a bearing on elderly health.

If ageing is to be a positive experience, longer life must be accompanied by continuing opportunities for health, participation and security. The World Health Organization has adopted the term "Active ageing" to express the process for achieving this vision. Active ageing is not just about physical activity and health care, but includes continuing participation in social, economic, cultural and civic affairs, aiming to improve mental health too. To achieve this, countries will have to do a great deal more than merely encourage people to be physically active.

Given the rate of population ageing that developing countries like India are experiencing, there is a need to focus on ageing issues and to take effective measures for improvement in the quality of life of elderly. Therefore, the challenges in the 21st century are – to delay the onset of disability and ensure the well being of older people.

In the recent years, there has been an increasing international awareness of health issues relating to aging populations. As a result, the importance of early surveillance of the health needs of elderly people is being given great emphasis. However, not much information about the morbidity profile of geriatric population is available in India. There is an urgent requirement to conduct extensive studies to garner a better understanding in this area. Assessment of the morbidity profileof the elderly helps in the provision of cost- effective services and the planning of feasible implementation strategies for intervention and care relevant to country's/region's needs, which ultimately aims to improve the health status and the quality of life of the elderly.In the light of the above stated facts, this study is undertaken with the primary objective of understanding the life style, the morbidity pattern and its association with sociodemographic variables among the geriatric urban population of Pune.

Aims and objectives

Aims

The aim of the study is to determine the association of sociodemographic and life style parameters and morbidity pattern of geriatric population of urban Pune.

Objectives

1.   To study the socio-demographic profile of elderly people.
2.   To study the morbidity pattern of geriatric population.
3.   To study few selected life style parameters like smoking status, alcohol usage, tobacco usage, BMI, physical activity and its association.

Methodology

The study was a cross sectional study carried out in the Urban Health Training Centre (UHTC) of the Armed Forces Medical College, Pune. The study included all elderly people above the age of 60 years residing in the UHTC. Informed consent was taken from the people before participating in this study. Data on height, weight, blood pressure, and morbidity status as well as socio demographic parameters was collected from all the elderly people on a pretested and pre-piloted questionnaire. To estimate with 95% confidence and precision of 5% around the true morbidity proportion of 50% of any disease, the minimum sample size required is 100 and hence 100 people above the age of 60 years were included in the study.

Digital B.P monitor was used for measuring systolic and diastolic blood pressure of the study population, in sitting and upright position. Digital weighing scales and measuring tape were used to measure the weight and height of the subjects respectively, to calculate their Body Mass Index (B.M.I).

The collected data was analysed using SPSS 22. The prevalence of geriatric morbidity along with 95% confidence interval and its association with sociodemographic variables and lifestyle variables was carried out using Chi square test.

Results

The study population consisted of a hundred people of age more than 60, comprising of 64% females and 36% males, with a sex ratio of 1:1.8. An analysis of the socio-demographic characteristics of the study population was done and the details are depicted in Table 1. The minimum age of the population was 60 years and the maximum age was 95 years, with mean age of 67.07 (±7.74).

Characteristics	Frequency (%)		Total	P value
	Male	Female		
Religion				>0.05
Christian			7.0	
Hindu	1	6	63.0	
Muslim	24	39	20.0	
Others	10 1	10 9	10.0	
Total	36	64	100.0	
Marital Status				0.04
Married	35	49	84.0	
Unmarried	1	2	3.0	
Widow/Widower	0	13	13.0	
Total	36	64	100.0	
Pension Status				>0.05
Not Receiving			76.0	
Receiving	30 6	46 18	24.0	
Total	36	64	100.0	
Type of Family				>0.05
Joint	1 6 2 0	31 33	47.0	
Nuclear		64	53.0	
Total	36		100.0	
Occupational Status				>0.05
Not Working	2 3 1 3	50 14	73.0	
Working		64	27.0	
Total	36		100.0	
Living Status				>0.05
Alone	2 4 2 4 6	5 8 26 25	7.0	
Spouse			12.0	
Spouse with Children		64	50.0	
With Children			31.0	
Total	36		100.0	
Education Category				
Higher Secondary	1	3	4.0	>0.05
Secondary	1 2 8 15	14 10 37	26.0	
Primary		64	18.0	
Illiterate			52.0	
Total	36		100.0	

Table 1: Socio-Demographic Characteristics of the Elderly People in the UHTC, Pune

It was observed that, a large number of the population are married and belonged to Hindu religion, followed by Muslims. Interestingly, only 47% of the elderly are living in joint families, as against 53% in nuclear families. However, 93% of the elderly are living with spouse and/or children, which signify the good support structure that exists in Indian society. A majority of the aged were illiterates (52%), with only 4% having studied till higher secondary level. 26% and 18% of the population had studied till secondary and primary level education respectively. Twenty seven percent of the study population were working for livelihood as against 73% who were non-working; and 24% of the population were receiving some form of pension.

Characteristic	Frequency(%)		Total	95% confidence Interval	P value
Physical Activity Category					
	Male	Female			
Yes	4	8	12.0	6.67-19.51	>0.05
No	32	56	88.0	80.49-93.33	
Total	36	64	100.0	97.05-100	
Smoking					
	Male	Female			0.000
Ex-Smokers	3	0	3.0	0.77-7.94	
Never	22	63	85.0	76.97-91.02	
Regularly	7	1	8.0	3.78-14.62	
Sometimes	4	0	4.0	1.28-9.36	
Total	36	64	100.0	97.05-100	
Alcohol					
	Male	Female			0.000
Ex-Alcoholics	2	0	2.0	0.34-6.45	
Never	23	63	86.0	78.14-91.80	
Regularly	4	1	5.0	1.85-10.73	
Sometimes	7	0	7.0	3.11-13.35	
Total	36	64	100.0	97.05-100	
Tobacco					
	Male	Female			**>0.05**
Ex-Consumers	1	2	3.0	0.77-7.94	
Never	29	39	68.0	58.39-76.58	
Regularly	6	20	26.0	18.12-35.25	
Sometimes	0	3	3.0	0.77-7.94	
Total	36	64	100.0	97.05-100	

Table 2: Distribution of Elderly people, by their extent of Physical Activity and Substance Abuse

Tables 2 shows the distribution of elderly, by their extent of

physical activity and substance abuse. About 12% of the elderly admitted to undertaking some kind of daily physical activity compared to 88% who do not indulge in any physical activity. Another significant finding is, substance abuse was significantly lesser in this population. 85% of the study population were non-smokers, 3% were ex-smokers about 12% were occasional or regular smokers. Whereas, 86% never had alcohol, 2% were ex-alcoholics and 12% take alcohol occasionally or regularly. However, Tobacco chewing was a bit higher, with 29% regular/occasional consumers, 2% ex-consumers and 68% nonconsumers.

Characteristic	n	Minimum	Maximum	Mean	Std. Deviation
Age	100	60	95	67.07	7.74
BMI	100	14.18	52.24	25.48	5.99
Systolic blood pressure	100	95	208	148.40	23.06
Diastolic blood pressure	100	53	114	85.04	12.55

Table 3: Descriptive Statistics

Besides the socio-demographic features, a comprehensive study was conducted on the study population to know about the prevalence of various morbidity factors that exist amongst them, the details of which are given in the Tables 4 to 13 and the distribution of various geriatric syndromes among these people are outlined in Table 14. Table 3 outlines the summarised data on Age, Body Mass Index (BMI); and Systolic and Diastolic blood pressure. Besides advancing age, higher BMI value which is the most commonly used surrogate for body fat (greater than 25) and elevated Blood Pressure (greater than 140/90mmHg) contributes to myriad of health issues including the risk of cardiovascular diseases. The lowest BMI value noted was 14.18, and 52.24, being the highest value.

The mean BMI value was calculated at 25.48 (±5.99) . indicating that on an average, the population was slightly overweight. The minimum and maximum systolic blood pressure recorded amongst the study population was 95 and 208 respectively, with a mean of 148.40 (±23.06) whereas, the minimum and maximum diastolic blood pressure recorded was 53 and 114 respectively, with a mean of 85.04 (±12.54) . The slightly higher values of BMI and blood pressure amongst this elderly population are indicative of the prevalence of health issues.

Out of all the study subjects, none of them showed any metabolic disorders (Table 4). 71% and 66% of the subjects had no endocrine and nutritional disorders respectively. 29% of the subjects reported some form of endocrine disorders, with Diabetes being the most prevalent disorder (24%) followed by Thyroid related problem(5%). 34% of the subjects reported some form of nutritional disorders, with Anaemia being the most prevalent disorder (28%) followed by Vitamin deficiency(15%).

Disease Endocrine	Frequency(%)		Total	95% confidence Interval	P value
	Male	Female			>0.05
Diabetes	11	13	24.0	21.43-26.72	
Thyroid related problem	1	4	5.0	1.85-10.73	
None	24	47	71.0	61.55-79.25	
Total	36	64	100.0	97.05-100	
Metabolic					
	Male	Female			>0.05
None	36	64	100.0	97.05-100	
Total	36	64	100.0	97.05-10012…	
Nutritional					
	Male	Female			>0.05
Anaemia	7	12	19.0		
Vitamin deficiency	1	3	4.0	12.20-27.57	
Anaemia and Vitamin deficiency	1	8	9.0	1.28-9.36	
	1	1	2.0	4.48-15.87	
Vitamin and Mineral deficiency	26	40	66.0	0.34-6.45	
None	36	64	100.0	56.31-74.77	
Total				97.05-100	

Table 4: Distribution of Elderly People based on Endocrine, Metabolic and Nutritional disorders

We also found significant association between Endocrine diseases and religion with a p value of 0.024.
A staggering 57% of the population has some form of cardiovascular ailments, with hypertension being the most widespread disease standing tall at 47%. The other ailments reported in this category are CAD and myocardial infarction (Table 5).

Diseases of Oral Cavity were prevalent in 56% of this aged population (Table 6). 39% of the respondents had reported broken teeth/stained teeth/both. It was already mentioned earlier that the habit of tobacco chewing is a bit higher in this study population, with 29% being regular/occasional consumers. This could be the reason for the high prevalence of this dental ailment. Further, Dental carries and Ulcers were reported in 7% and 1% of the population respectively.

60% of the study subjects were reportedly suffering from various types of eye diseases, with Refractive Error being the most prevalent disease followed by Cataract and Glaucoma. 31% of the populations were suffering from problems related to hearing impairment (Table7).

Disease	Frequency(%)		Total	95% confidence Interval	P value
	Male	Female			
Coronary artery disease	0	1	1.0	0.05-4.83	>0.05
Hypertension	10	32	42.0	32.62-51.84	>0.05
Hypertension and Myocardial infarction	3	2	5.0	1.85-10.73	>0.05
Myocardial infarction	2	2	4.0	1.28-9.36	>0.05
None	19	24	43.0	33.56-52.84	>0.05
Others	2	3	5.0	1.85-10.73	>0.05
Total	36	64	100.0	97.05-100	>0.05

Table 5: Distribution of Elderly People based on Cardio-Vascular diseases

We found significant association between Cardio vascular diseases and education of person with a p value of 0.001.

Disease	Frequency(%)		Total	95% confidence Interval	P value
	Male	Female			
Broken and stained teeth	4	1	5.0	8.98-23.02	0.038
broken teeth	4	6	10.0	5.19-17.10	0.038
Dental carries	5	2	7.0	3.11-13.35	0.038
No teeth	2	7	9.0	4.48-15.87	0.038
Stained teeth	4	10	14.0	8.20-21.86	0.038
Ulcers	1	0	1.0	0.05-4.83	0.038
None	19	25	44.0	34.51-53.83	0.038
Total	36	64	100.0	97.05-100	0.038

Table 6: Distribution of Elderly People based on diseases related to Oral Cavity

Category	Disease	Frequency(%)		Total	95% confidence Interval	P value
		Male	Female			
Eye Diseases	Cataract	2	10	12.0	6.67-19.51	>0.005
	Cataract and Refractive error	1	7	8.0	3.78-14.62	>0.005
	Glaucoma	4	4	8.0	3.78-14.62	>0.005
	Refractive error	10	14	24.0	21.43-26.72	>0.005
	Refractive error and Glaucoma	3	2	5.0	1.85-10.73	>0.005
	Others	1	2	3.0	0.77-7.94	>0.005
	None	15	25	40.0	30.75-49.82	>0.005
	Total	36	64	100.0	97.05-100	>0.005
Hearing Impairment		Frequency(%)		Total	95% confidence Interval	P value
		Male	Female			
	No	21	48	69.0	59.44-77.47	>0.005
	Yes	15	16	31.0	22.52-40.56	>0.005
	Total	36	64	100.0	97.05-100	>0.005

Table 7: Distribution of Elderly People based on diseases related to Eyes and Hearing Impairment

Diseases of Gastro Intestinal Tract were reported in 23% of the population, with Indigestion(14%), Gastritis(5%) and others(Table 8). Respiratory diseases also seem to be a major morbidity factor, with 47% having some form of respiratory disorder(Table 9).

Chronic Obstructive Pulmonary Disease (COPD) and Allergic Cough and Cold are the major diseases existing with 32% and 12% respectively, followed by Asthma. A meagre 3% of the population had reported diseases associated with Central Nervous System
(CNS), while Uro-Genital diseases like Haematuria, Piles, Renal Calculi, etc existed in a 7% of the population(Table 10&11).

Disease	Frequency(%)		Total	95% confidence Interval	P value
	Male	Female			
Diarrhoea	0	2	2.0	0.34-6.45	>0.005
Gastritis	2	3	5.0	1.85-10.73	>0.005
Indigestion	4	10	14.0	8.20-21.86	>0.005
Others	0	2	2.0	0.34-6.45	>0.005
None	30	47	77.0	68.00-84.45	>0.005
Total	36	64	100.0	97.05-100	>0.005

Table 8: Distribution of Elderly People based on diseases of

Gastro Intestinal Tract (GIT)

Disease	Frequency(%)		Total	95% confidence Interval	P value
	Male	Female			
Allergic Cough and Cold	3	8	11.0	5.92-18.31	>0.005
Asthma	0	2	2.0	0.34-6.45	>0.005
COPD	8	22	30.0	21.63-39.51	>0.005
COPD and Allergic Cough and Cold	1	0	1.0	0.05-4.83	>0.005
COPD and Asthma	1	0	1.0	0.05-4.83	>0.005
Others	1	1	2.0	0.34-6.45	>0.005
None	22	31	53.0	43.20-62.63	>0.005
Total	36	64	100.0	97.05-100	>0.005

Table 9: Distribution of Elderly People based on Respiratory diseases

We found significant association between Respiratory diseases and type of family with a p value of 0.040.

Disease	Frequency(%)		Total	95% confidence Interval	P value
	Male	Female			
Yes	2	1	3.0	0.77-7.94	>0.005
No	34	63	97.0	92.05-99.23	>0.005
Total	36	64	100.0	97.05-100	>0.005

Table 10: Distribution of Elderly People based on diseases related to Central Nervous System (CNS)

Disease	Frequency(%)		Total	95% confidence Interval	P value
	Male	Female			
Haematuria	0	3	3.0	0.77-7.94	>0.005
Haematuria and Piles	0	1	1.0	0.05-4.83	>0.005
Renal Calculi	0	2	2.0	0.34-6.45	>0.005
Others	1	0	1.0	0.05-4.83	>0.005
None	35	58	93.0	86.64-96.89	>0.005
Total	36	64	100.0	97.05-100	>0.005

Table 11: Distribution of Elderly People based on Uro-Genital diseases

There was no association of uro-genital diseases with gender of the person however we found significant association between Uro-genital diseases and religion with a p value of 0.014.

14% of the population reported skin diseases like Dermatitis (3%) and others. Other infections were reported in 5% of the population (Table 12). Disorders associated with Musculo-skeletal problems

were witnessed in a vast 82% of the population (Table 13). The incidence of Backache and joint pains were highest with 40-50% of the population suffering with the problem. The other disorders found in this category were Myalgia, Osteoporosis, Osteoarthritis, etc.

Category	Disease		Frequency(%)	95% confidence Interval	Total
			P value		
Skin Diseases					
	Male	Female			
Dermatitis	3	0	3.0	0.77-7.94	0.021
Others	6	5	11.0	5.92-18.31	0.021
None	27	59	86.0	78.14-91.80	0.021
Total	36	64	100.0	97.05-100	0.021

Table 12: Distribution of Elderly People based on Skin diseases

Disease	Frequency(%)		Total	95% confidence Interval	P value
	Male	Female			
Backache	2	2	4.0	1.28-9.36	0.000
Backache and joint pains	1	20	21.0	13.86-29.80	0.000
Joint pains	3	15	18.0	11.38-26.45	0.000
Myalgia and joint pains	8	5	13.0	7.43-20.69	0.000
Osteoarthritis	3	4	7.0	3.11-13.35	0.000
Osteoporosis	5	8	13.0	7.43-20.69	0.000
Others	2	4	6.0	2.47-12.06	0.000
None	12	6	18.0	11.38-26.45	0.000
Total	36	64	100.0	97.05-100	0.000

Table 13: Distribution of Elderly People based on Musculo-Skeletal diseases

Geriatric Syndromes

Geriatric Syndromes are the common clinical conditions in aged persons that do not fall under any specific disease categories, but have substantial implications on their functional independence. Besides leading to increased mortality and disability, they drain the financial resources due to frequent visits to hospitals, and eventually diminish the quality of life. These are the multi-factorial health conditions that occur when the accumulated effects of impairments in multiple systems renders a person vulnerable to situational challenges [14]. The notable of such syndromes are- Dementia, Delirium, Urinary Incontinence, Falls, Gait disturbances, Dizziness, Syncope, Hearing impairment, Visual impairment, Osteopenia, Malnutrition, Eating and Feeding Problems, Pressure Ulcers, Sleep Problems etc.

Disease	Frequency	Percent	95% confidence Interval
Cognitive Impairment	34	34.0	25.23-43.69
Depression	19	19.0	12.20-27.57
Functional	7	7.0	3.11-13.35
Dependency			
Sleep Problems	20	20.0	13.02-28.69
Loneliness	4	4.0	1.28-9.36
Dementia	4	4.0	1.28-9.36
Falls	23	23.0	15.54-32.00
Incontinence	6	6.0	2.47-12.06
Gait Problems	20	20.0	13.02-28.69
None	20	20.0	13.02-28.69

Table 14: Distribution of Elderly People based on Geriatric Syndromes

Discussion

It was observed in this cross sectional study that, most of the population in the Urban Health Training Centre (UHTC), were living with spouse and/or children, which means to say that they have a good support structure to provide physical and emotional support, during their advancing years. Nearly 52% of them were illiterates, with only 48% having received education at least till Primary level.

About 27% of the population was working for livelihood and 24% of the population was receiving some form of pension. Substance abuse was significantly lesser with only 12% Smoking and taking Alcohol regularly/occasionally. However, Tobacco chewing was slightly higher, with 29% regular/occasional consumers.

The slightly higher mean values of BMI 25.485 ($^{\pm5.99}$¿ systolic blood pressure 148.40 ($^{\pm23.064}$ ¿ and diastolic blood pressure 85.04 ($^{\pm12.548}$¿ in this elderly population is a general indication of slightly overweight people with likely existence of health issues.

The major morbidity categories in this population were – Musculoskeletal diseases (82%), Eye diseases (60%), closely followed by Cardio-Vascular diseases (57%), diseases related to Oral cavity (56%), Respiratory diseases (47%), Nutritional disorders (34%), Hearing impairment (31%), Endocrine disorders(29%), diseases of GIT(23%), Skin diseases (14%), Uro-Genital diseases (7%) and diseases of CNS (3%).

Disorders of Musculoskeletal system constituted the predominant morbidity factors (82%) in the study population. Joint pains were found be the major musculoskeletal problem with 52%, followed by Back pain (25%), Myalgia and Osteoporosis (13% each). Highest incidence of musculoskeletal disorders (47.84%), in urban slums, was also reported in a study by Kajal Srivastava et al.2010[6]. Similar to the findings of present study, Arthritis (joint pains) was found to be the major musculoskeletal disorder in studies done by Shraddha et al.2012 [5], Kajal Srivastava et al.2010 [6], Kakkar R et al.2013 [8] .

In the present study, it was found that, Eye diseases (60%) and CardioVascular diseases (57%) contribute to the next level major factors contributing to morbidity. Refractive Error (37%) and Cataract (20%) constituted the major eye ailments, whereas, Hypertension (47%) and Myocardial Infarction (9%) constituted the major Cardio-Vascular ailments. Similar results with high occurrence of eye diseases particularly Cataract and/or Refractive Error; and Circulatory disorders especially Hypertension, were reported by Rahul Prakash et al.2004[11],Shraddha et al.2012 [5], Uposoma Dey et al.2013 [12], etc.

56% of the population had reported diseases of Oral cavity. The

major oral problem was Broken/Stained teeth/both, which could be the result of the higher existence of Tobacco chewing habit and also poor oral hygiene in the study group. Study done by Shraddha et al.2012 [5], Sanjiv Kumar Barman et al. 2014 [13] showed matching results, with broken/stained teeth or loss of teeth being the major oral disorders.

This is followed by Respiratory ailments (47%), which is dominated by COPD (32%) and Allergic Cough and Cold (12%) . Nutritional disorders (34%) are normally expected in this group, as being the Urban Slum population. As expected, Anaemia (28%) and Vitamin deficiency (15%) were mainly reported. Predominance of COPD among respiratory ailments and Anaemia among Nutritional disorders were also reported by P.C.Das et al.2013[7], Abhishek Arun et al.2013 [9], Shraddha et al.2012 [5], Kajal Srivastava et al.2010 [6],etc.

While hearing impairments were reported in 31% of the population, endocrine disorders were found in 29% of the population. Diabetes (24%) was the major endocrine disease found in the study population, which is consistent with many studies conducted across Indian population.

23% of population reported diseases of GIT, with Indigestion (14%) and Gastritis (5%) occupying the major chunk. 14% of the population reported Skin diseases, including Dermatitis (3%). Uro-Genital diseases were found only 7% of the population, while diseases of CNS were found in only 3% of the population. None of the study group indicated the presence of any metabolic diseases.

To summarise the present study, the overall morbidity in the study subjects, due to Joint pains (52%), remained high, followed by Hypertension (47%), Broken/stained teeth or both (39%), Refractive Error- 37%, COPD- 32%, Anaemia (28%), Diabetes (24%) Cataract- 20% and Indigestion (14%). The prevalence of these diseases as major factors affecting the elderly (not particularly in the order mentioned) were also reported by Uposoma Sinha et al., 2013 [12], Rahul Prakash et al. 2004 [11], Jadhav vs et al.2 012 [10]; Abhishek Arun et al.2013 [9], Shraddha et al.2012 [5],Kajal Srivastava et al.2010 [6],etc.

Most of the study population was affected with multiple geriatric syndromes (more than 1, even up to 5). Cognitive impairment was the most prevalent geriatric syndrome found in 34% of subjects. Cognitive impairment, an age-related condition associated with trouble in remembering, learning new things, concentrating, or making decisions that affect their everyday life, is often considered a precursor to more serious diseases such as depression/dementia/Alzheimer's disease. The other syndromes observed in this study are - Falls (23%), Sleep problems (20%), Gait problems (20%), Depression (19%), Functional Dependency(7%), Incontinence (6%), Loneliness, Dementia, etc. A study on the prevalence of geriatric syndromes at a Tertiary Care Hospital, AIIMS, New Delhi, by P.C. Das et al.2013 [7] , indicated Functional Dependency as the most prevalent geriatric syndrome followed by Depression (8.2%), Falls (7.6%), Incontinence (4.4%) and Cognitive impairment (1.5%), among others. Though the major geriatric syndromes reported in our present study are more or less similar, the higher incidence of Cognitive impairment in our study population could be due to the fact that, the sample is drawn from urban slums, comprising of mostly illiterates with no exposure to cognitive stimulants and enriched nutrition.

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