

Original Article

Geriatric morbidity profile in an urban slum, Central India

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Abstract

Background – In developing country like India, the elderly people suffer from the dual medical problems of both communicable as well as degenerative diseases. The common illnesses were degenerative disease, cataract, hypertension, diabetes and diseases of locomotors.

Methods- The cross sectional study was conducted from Nov 2009 to March 2011 in urban slum areas of UHTC, covering a population of 20342, which is an adopted area under the administrative control of dept. of community medicine, NKP Salve Institute of medical sciences & research centre, Nagpur. A minimum sample size of 400 elderly people (≥ 60 yrs) were selected for study by house to house visits and worked out assuming 'p' of 50% and precision of 10% at 95% confidence interval. The first house was selected by lottery method and then every 3rd house was selected by systematic random sampling method. Information about study was given to all study subjects, rapport was developed and then subjects were called at UHTC for detailed history and examination.

Results-The most common morbidities identified in study population was Anemia (96.50%) followed by Hypertension (34.75%), Arthritis (32.25%), Cataract (21.00%) and Diabetes 17.75%). The significant association of obesity with gender is observed in the present study.

Conclusions- Majority of the population above 60 years of age in the present study were suffering from non-communicable diseases. There was a significantly higher load of old age related morbidity among the study subjects. This burden increased with advancement of age possibly as a consequence to progressive multi-organ degeneration and lowered immunologic status involving one body system after another.

Key words: Geriatric morbidities, Prevalence, Urban slum, UHTC, Nagpur.

Introduction:

Indian elderly population is currently the second largest in the world. As per the 2001 census, the population of the elderly in India was 77 million as compared with 20 million in 1951. There has been a sharp increase in the number of elderly persons between 1991 and 2001 and it has been projected that by the year 2050, the number of elderly people would rise to about 324 million¹. India has thus acquired the label of "an ageing nation" with 7.50% of its population being more than 60 years old². The demographic transition is attributed to the decreasing fertility and mortality rates due to the availability of better health care services. With the decline in fertility and mortality rates accompanied by an improvement in child survival and increased life expectancy, a significant feature of demographic change is the progressive increase in the number of elderly persons. Increasing life span and poor health care add to the degree of disability among the elderly and compound the problems of care giving.

In India, the elderly account for 7.50% of the total population, of which two-thirds live in villages and nearly half of them in poor conditions³. Urbanization, nuclearisation of family, migration, and dual career families are taking care of the elderly more and more of a personal and social problem in India⁴.

In developing country like India, the elderly people suffer from the dual medical problems of both communicable as well as degenerative diseases. Some disabilities like senile cataract, nerve deafness, glaucoma, osteoporosis affecting motility, emphysema, failure of special senses, changes in mental outlook, etc are intended to the ageing. The common illnesses found more in old than in young are degenerative disease, cancer, diabetes, diseases of locomotor system, respiratory illness, genitourinary problems and psychological problems^{5,6}.

In order to make the world familiar with the old age problems, world Health Organization celebrated WHO

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day with "ACTIVE AGEING MAKES THE DIFFERENCE" as slogan and declared the year 1999 as international year for older persons⁷. Looking in to the importance of addressing the problems of aging, the social transformation representing both challenges & opportunities, WHO has recently announced the WHO theme for year 2012 as "AGEING & HEALTH"⁸.

Care of geriatric is a burning issue now a day and will require certain planning and provision for old persons. It will be causing load on health services as well as young care takers. Therefore, this study has been conducted to get an insight into the present scenario of health status of geriatric people in urban slum area of Nagpur. This study has focused on studying health profile of elderly population aging more than 60 years.

AIMS and Objectives

1. To study the morbidity profile among geriatric population.
2. To study the morbidity load among geriatric population.

Material & Method:

The cross sectional study was conducted in urban slum areas of UHTC, Jaitala, Nagpur covering a population of 20342, which is an adopted area under the administrative control of NKP Salve institute of medical sciences & Research centre and Lata Mangeshkar hospital, Nagpur. The present study was conducted from Nov 2009 to March 2011. A minimum sample size of 400 elderly people was worked out assuming 'p' of 50% and precision of 10% at 95% confidence interval.

Sample size= 400

Area of study-UHTC, Jaitala

Mention name of city –Nagpur, Maharastra

Elderly people ≥ 60 years were selected for study by house to house visits. The first house was selected by lottery method and then every 3rd house was selected by systematic random sampling method. Information about study was given to all study subjects, rapport was developed and then subjects were called at UHTC for detailed history and examination.

The methodology comprised of interview and clinical examination. The information was collected on a pre-designed, pre-tested format. Subjects were clinically evaluated based on the steps given by the "*Handbook on Health Care of the Elderly: A Manual for Physician in Primary and Secondary Health Care Facilities*"⁶ i.e. by their reported illness (Existing diagnosis), medication held by the subjects, history and clinical examination. The physical equipments used

were Stethoscopes, B.P. Apparatus, Snellen's Chart, Sahli's haemoglobinometer and glucometer has been used to assess the morbidity status of the elderly. Blood pressure was measured in lying down position using mercury type sphygmomanometer twice in each individual at an interval of 30 minutes. Elderly with systolic blood pressure of 140 mmHg or more and / or diastolic blood pressure of 90 mmHg or more were considered as hypertensive. Snellen's Chart (E Chart) was used to assess the visual acuity. Those who were unable to read were further examined for cataract and corneal opacity.

Subjects were investigated for Hb% estimation and random blood sugar at UHTC, Jaitala. Hemoglobin estimation was done by using Sahli's haemoglobinometer and random blood sugar by glucometer, respectively. Data entry and data analysis was done in Epi.Info. statistical software. Chi-square test was applied and following observations were made.

Limitation of study: A limitation in this study was that it was not possible to verify certain responses to queries on age, literacy levels, occupational levels, economic status and health problems.

Inclusion criteria: Age 60 years and above.

Exclusion Criteria: Age less than 60 years and Chronic & seriously ill person.

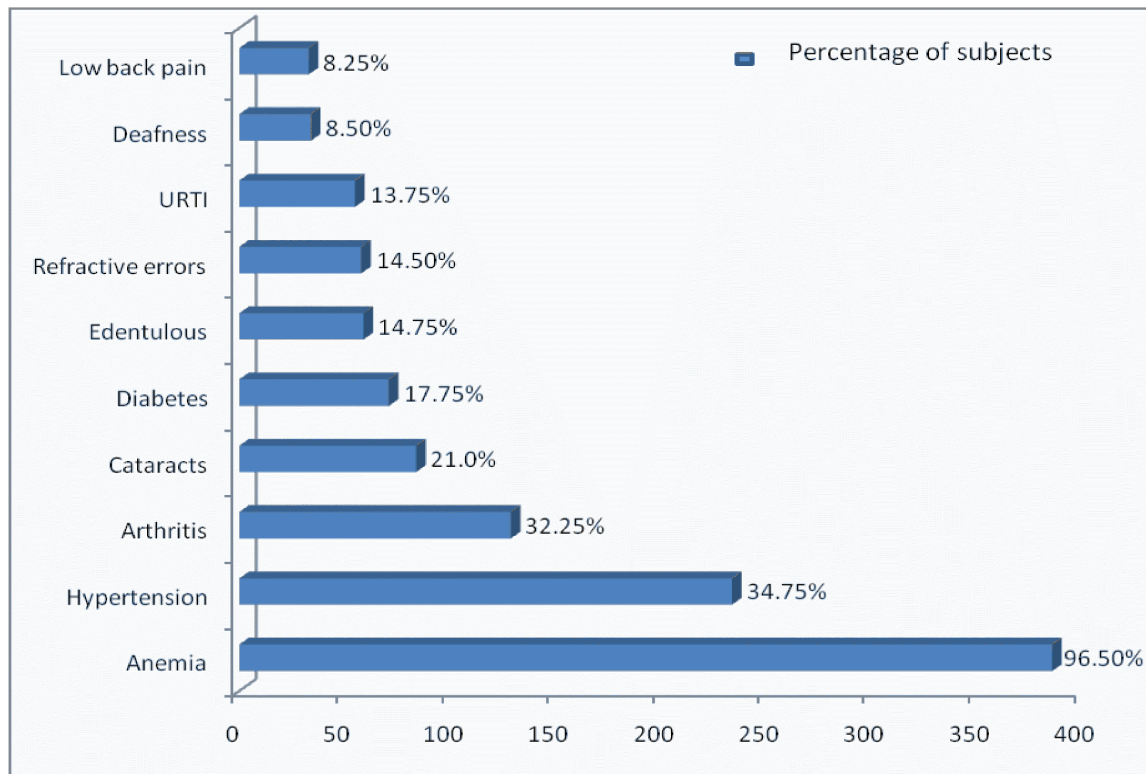
Results:

Most common system wise morbidity in study population was haemopoietic system (96.5%) followed by locomotor system (47.75%), ocular system (42.75%) and cardiovascular system (38.75%), respiratory ailments (19.75%), dental problem (18.0%), diabetes (17.75%), gastrointestinal ailments (9.5%), ENT problems (9.25%), Nervous system problems (8.0%), Skin problems (4.75%), urogenital disorders (4.25%) and others (4.5%). All the study subjects have one or more than one morbidity and among them anaemia is most common.

Table-1 System wise morbidity pattern among study population

S.N.	Morbidities	ICD-10	Total (%)	S.N.	Morbidities	ICD-10	Total (%)
A.	Haemopoietic system		386 (96.50)	28..	Diabetes	E10-14	71 (17.75)
1.	Anemia	D64.5	386 (96.50)	H.	Gastro-Intestinal system		38 (9.5)
B.	Locomotors system		191(47.75)	29.	Acute Abdomen	R10.0	17 (4.25)
2.	Arthritis	M13.9	129 (32.25)	30.	Gastritis	K29.7	12 (3.00)
3.	Low back pain	M54.5	33 (8.25)	31.	Gastro-esophasial reflux disorders	K21.9	05 (1.25)
4.	Cervical /Lumber spondylitis	M47.8	25 (6.25)	32.	Constipation	K59.0	03 (0.75)
5.	Lumber lordosis	M40.5	02 (0.50)	33.	Crohn's disease	K50.9	01 (0.25)
6.	Frozen shoulder	M75.0	02 (0.50)	I.	ENT		37 (9.25)
C.	Ocular system		171(42.75)	34.	Deafness	H90-91	34 (8.50)
7.	Cataracts	H25-26	84 (21.00)	35.	Suppurative otitis media	H60.0	03 (0.75)
8.	Refractive errors	H52.7	58 (14.50)	J.	Nervous system		32 (8.00)
9.	Glaucoma	H40.9	14 (3.50)	36.	Vertigo/Dizziness	R42	11 (2.75)
10.	Conjunctivitis	H10	07 (1.75)	37.	Neuropathy	G62.9	9 (2.25)
11.	Corneal opacity	H17	07 (1.75)	38.	Cerebro-vascular accidents	I64.0	9 (2.25)
12.	Retinopathy	H35.0	01 (0.25)	39.	Subdural hemorrhage	I62.0	3 (0.75)
D.	Cardiovascular system		155 (38.75)	K.	Skin		19 (4.75)
13.	Hypertension	I10-15	139 (34.75)	40.	Puritis	L29.9	9 (2.25)
14.	Angina	I20.9	07 (1.75)	41.	Scabies	B86	5 (1.25)
15.	Internal piles	I84.9	05 (1.25)	42.	Dermatitis	L30.9	5 (1.25)
16.	Myocardial infarction	I21.9	04 (1.00)	L.	Others		18 (4.5)
E.	Respiratory system		79 (19.75)	43.	Fever	R50.9	5 (1.25)
17.	URTI	J98.9	55 (13.75)	44.	Enteric fever	A01.0	3 (0.75)
18.	Bronchitis	J45	03 (0.75)	45.	In growing nail	L60.0	2 (0.50)
19.	COPD	J44.9	07 (1.75)	46.	Herpes simplex	B00.9	2 (0.50)
20.	Bronchial Asthma	J45	03 (0.75)	47.	Abscess	L02.9	2 (0.50)
21.	LRTI	J22	02 (0.50)	48.	Koilonychias	L60.3	1 (0.25)
22.	Pulmonary T.B.	A16.2	02 (0.50)	49.	Wound	T14.1	1 (0.25)
23.	Pleural effusion	A16.5	02 (0.50)	50.	Malaria	B54.0	1 (0.25)
F.	Dental		72 (18)	51.	Insect bite	B14.0	1 (0.25)
24.	Edentulous	K08.1	59 (14.75)	M.	Urogenital system		17 (4.25)
25.	Toothaches	K08.8	6 (1.50)	52.	BPH	N40.0	5 (1.25)
26.	Dental carries	K02.9	4 (1.00)	53.	UTI	N39.0	5 (1.25)
27.	Oral ulcer	K12.1	3 (0.75)	54.	PID	N73.9	4 (1.00)
G.	Endocrine system		71 (17.75)	55.	CRF	N18.9	3 (0.75)

Fig-1 Distribution of study subjects according to prevalence of major morbidity (n=400)



Most common morbidity in study population was Anemia (96.50%), followed by Hypertension (34.75%), Arthritis (32.25%), Cataract (21.00%), Diabetes

(17.75%), Edentulous (14.75%), Refractive errors (14.50%), URTI (13.75%), Deafness (8.50%) and Low back pain (8.25%).

Table 2 Distribution of study subjects according to Number of morbidities (n=400)

Number of morbidity	Total	%
1	5	1.25
2	94	23.50
3	130	32.50
4	125	31.25
≥ 5	46	11.50
Total	400	100.00

Majority of the study subjects have three morbidities

(32.50%), followed by four morbidities (31.25%) and two morbidities (23.50%).

Table-3 Association of major Morbidities with gender (n=400)

Morbidity	Male (n=165)	Female (n=235)	Chi-square	P-value
Anemia	157(95%)	229(97%)	1.51	0.21
Hypertension	61(36.97)	78(33.19)	0.61	0.434
Arthritis	46(27.88)	83(35.32)	2.46	0.117
Cataracts	39(23.64)	45(19.15)	1.18	0.278
Diabetes	31(18.79)	40(17.02)	0.21	0.64
Edentulous	28(16.97)	31(13.19)	1.10	0.294
*Obesity (BMI>25)	22(13.33)	61(25.95)	9.39	0.0021
Deafness	14(8.48)	20(8.51)	0.00	0.99
Low back pain	9(5.45)	24(10.21)	2.90	0.088

*significant $p < 0.05$

· It has been observed from this table that females were more obese than males (Female 25.95% & Male 13.33%).

· The association of obesity with gender was found significant, while other major morbidities with gender were not significant.

Discussion:

Prevalence and pattern of morbidity

Morbidity load- In the present study 400 morbid individuals suffered from 1268 illnesses due to multiple afflictions. This resulted in a morbidity load of 3.17 episodes per person and this signifying a high vulnerability of the study population to various illnesses. This study is more similar to morbidity load as in H.M. Swami⁹ Study (3.28).

Morbidity pattern - Majority of the population above 60 years of age in the present study were suffering from Anemia (96.50%), followed by morbidity of locomotor system (47.25%), ocular system (42.75%), cardiovascular system (38.75%), respiratory ailments (19.75%), dental problem (18.0%), diabetes (17.75%), gastrointestinal ailments (9.5%), ENT problems (9.25%), Nervous system problems (8.0%), Skin problems (4.75%), urogenital disorders (4.25%) and others (4.5%). Here association of morbidity with gender was not significant except obesity with gender ($p < 0.05$).

This study showed that **blood vascular system** was the most commonly affected among all body systems. Majority of these was constituted by mild grade of

anemia (56.75%), followed by moderate grade of anemia (37.5%) while only 2.25% were belonged to sever grade of anemia. Among mild grade anemia, 57.27% were males and 42.73% were females and among moderate grade anemia, females were more anemic (83.33%) than males (16.67%) while among sever grade, females were more anemic (77.78%) than males (22.22%). Among within normal limit of anemia, males were 57.14% and females were 42.86%. Females (97.45%) were more anemic than males (95.15). This result is more similar to study of M.K.Sharma (2005)¹⁰.

Locomotor system problems (47.5%) were the 2nd most common morbidity affected among all body system. Arthritis was seen in 32.25%, low back pain in 8.25%, cervical/lumber spondylitis in 6.25%, lumber lordosis in 0.50% & frozen shoulder in 0.50%. This is more similar (45.7%) to study of SPS Bhatia et al (2007)¹¹

Eye problem had been seen in 42.75% individuals. Majority of these was constituted by cataract 21.0%, followed by refractive error 14.5%, corneal opacity & conjunctivitis was 1.75% each and glaucoma was 0.25%. While R Shankar et al (2007)¹² mentioned that among 55.41% ocular morbidity, 48.33% were cataract, 5.00% corneal opacity, 1.25% complete blind and 0.83% conjunctivitis.

Cardiovascular problem was the common manifestation in the study subjects and had been seen in 38.75% of individuals. Out of which hypertension was seen in 34.75%, Angina 1.75%, internal piles 1.25%

and myocardial infarction 1.00%. Prevalence of hypertension (34.75%) in our study is more similar to the study of A. Khokhar (2001)¹³.

Involvement of **respiratory system** was observed in 19.75% of the subjects, out of which prevalence of upper respiratory tract infection was 13.75%, chronic bronchitis 2.0%, COPD 1.75%, bronchial asthma 0.75%, lower respiratory tract infection, pleural effusion and pulmonary tuberculosis 0.50% each. It is more similar to the study of R Shankar et al (2007)¹², who mentioned that among 20.41% respiratory morbidity, 7.50% were bronchial asthma, 6.67% chronic bronchitis, 3.75% pulmonary tuberculosis and 2.50% pneumonia.

Dental problems had been seen in 18.0% of the study subjects, out of which edentulous were 14.75%, toothache 1.55, dental carries 1.0% and oral ulcer 0.75%. While PR Moharana et al (2008)¹⁴ mentioned that 17% geriatric population was suffering from dental and oropharyngeal problems.

Involvement of **endocrine system** was observed in 17.75% study subjects, and among them all were NIDDM. While Sonia puri (2007)¹⁵ mentioned that overall prevalence of diabetes was 27.1% in an urban slum area of Chandigarh.

Gastro intestinal tract system involvement was seen in 9.5%, which was mainly constituted by acute abdomen (4.25%), gastritis (3.0%), gastro-esophasal reflex diseases (1.25%), constipation (0.75%) and crohn's disease (0.25%). While Surekha Kishore et al (2007)¹⁶ mentioned that the digestive system problem was seen in 12.3%.

ENT system involvement was seen in 9.25%, which was mainly constituted by deafness (8.5%) and suppurative otitis media (0.75%). While R Shankar et al (2007)¹² mentioned that among 4.58% ENT morbidity, 3.75% had deafness and 0.83% had suppurative otitis media.

Involvement of **nervous system** was observed in 8.0% of the study subjects, out of which prevalence of vertigo/dizziness was 2.75%, neuropathy 2.25%, Cerebro-vascular accident 2.25% and subdural hemorrhage 0.75%. It is more similar (8.6%) to the study of Rahul Prakash et al (2004)¹⁷.

Skin problems had been seen in 4.75% of the study subjects, out of which pruritis were 2.25%, scabies and dermatitis were 1.25% each. This finding is more similar to study of SPS Bhatia et al (2007) and Surekha Kishore et al (2007)¹⁸.

Diseases of **uro-genital system** were observed in 4.25% of the geriatric subjects, comprising of benign prostate hypertrophy in 1.25% males and pelvic inflammatory diseases 1.0% in females. Uro-genital problems also constituted UTI 1.25% and CRF 0.75%. It is more similar to the study of R Shankar et al (2007)¹².

Obesity- Here majority of the study subjects were belonged to normal BMI group (60.25%), followed by underweight group (19.0%), pre obesity group (15.25%) and obese group (5.5%). Females were two times more obese than males. Here association of obesity (BMI >25 kg/m²) is significant with sex (F 25.95% & M 13.33%). $p < 0.05$. This study is similar with Rajshree Bhatt¹⁹ study among obese subjects.

Other problems were observed in 4.5% of the study subjects, out of which fever 1.25%, enteric fever 0.75%, in growing nail, herpes & abscess each 0.50%, koilonychias, wound, malaria and insect bite each 0.25%. This observation is more close to H M Swami et al (2002)²⁰ study.

Summary & Conclusion:

Majority of the population above 60 years of age in the present study were suffering from blood vascular problems (96.50%), followed by locomotors system (47.25%), ocular system (42.75%), cardiovascular disorders (40.0%), respiratory ailments (19.75%), dental problem (18.0%), diabetes (17.75%), gastrointestinal ailments (9.5%), ENT problems (9.25%), nervous system problems (6.75%), skin problems (4.75%), uro-genital disorders (4.25%) and others (4.5%). There was a significantly higher load of old age related morbidity among the study subjects. This burden increased with advancement of age possibly as a consequence to progressive multi-organ degeneration and lowered immunologic status involving one body system after another.

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