An epidemiological study of prevalence of morbidity patterns among geriatric age group in an urban slum of Mumbai

Shilpa Sahukaiah[1], Anitha Shenoy[2], Vijayakumar BC[3]

[1]Department of Community Medicine, Sapthagiri Institute of Medical Sciences & Research Center, Bangalore, Karnataka, India.
[2]Department of Community Medicine, TN Medical College, Mumbai, Maharashtra, India.
[3]Pharmacovigilance Department, Quintiles, Marathahalli, Bangalore, Karnataka, India.
Correspondence to: Shilpa Sahukaiah, E-mail: shilpashk@gmail.com

Abstract

Background: Populations worldwide are aging. For the reasons that the geriatric population is increasing in number and in proportion, the strong association between age and morbidity and the present health-care situation, which does not meet all the needs and demands of geriatric people, suggest an increased demand in health services and need for expansion of role of physicians in providing a comprehensive care for older people.

Objective: To study the morbidity prevalence and patterns in geriatric age group in an urban slum.

Materials and Methods: The study was conducted in a resettlement colony on the outskirts of Mumbai, the field practice area under the Department of PSM of the parent medical college. This was an epidemiological community-based cross-sectional study in an urban slum of Mumbai. Statistical analysis was done using SPSS software, version 16, with appropriate statistical test.

Result: A total of 683 illnesses were reported by 195 subjects (who were reported ill), that is, the average illness per person among study subjects was 3.10. Most of the chronic diseases were seen in the age group of 60–70 years and showed a decreasing trend in later years.

Conclusion: Active aging makes a difference, we need to create awareness in people about active aging. Approach in this matter needs to be holistic and comprehensive to enhance the quality of aging.

KEY WORDS: Aging, morbidity, urban slum

Introduction

Aging is a natural physiological phenomenon that nobody can escape. With humans, the perception of old age varies.

But the most common opinion among general population is that aging stresses people due to loss of independence, dependence on family members, and onset of disabilities or diseases. Improvements in environmental (e.g., clean water and improved sanitation) and behavioral (e.g., nutrition and reduced risk exposures) factors, and treatment and prevention of infectious diseases are largely responsible for the 30 year increase in life expectancy since 1900, which is still expected to increase further. At present 59% older adults live in the developing countries of Africa, Asia, Latin America, the Caribbean, and Oceania.[1]

The population aging has come to be recognized as common awareness among people worldwide after Second World Assembly of Aging held in Madrid, Spain in 2002.[2]

The report by United Nations showed that the population of elderly people is growing worldwide at a rate of 2.6% per year, whereas the population as a whole is increasing by just 1.1% annually.

In India, there is a gradual increase in elderly population of both male and female together, which increased from 12.06 million in 1901 to 77 million in 2001. These changes can present with complicated implications on health, social, and family life.[3]

The proportion of elderly in the population of India increased from 5.63% in 1961 to 7.5% in 2001. The proportion is expected to be 12% in 2031 and 17% in 2051.

Health problems of the elderly aged people can be classified as problems due to aging process (senile cataract, glaucoma, nerve deafness, emphysema) and problems associated with long-term illness (due to mental changes: impaired memory, rigidity of outlook, dislike of change; sexual maladjustments: irritability jealousy due to impaired sexual function; emotional disorders: resulting from social instability, decreased power, decreased finances, and family dependency; and medical disorders).

Lots of theories on aging have been put forth in the science of gerontology and these can be classified into genetic and nongenetic theories. These theories along with many gerontologists agree that there is no single cause of aging.[4]

India's health programs and policies have been focusing on issues such as population stabilization, maternal and child health, and infectious disease control not very few policies for elderly. However, current statistics for the elderly in India gives a prologue to a fresh lay down of medical, social, and economic problems that could arise if a timely initiative in this direction is not taken by the program managers and policy makers. There is a need to highlight the medical and socioeconomic problems that are being faced by the aged people in India, and strategies for bringing about evolution in their quality of life.

Urbanization has already led to and would be leading to an increased number of slums, which is a great challenge to the government sector in terms of maintaining the health of this population. At this point in time, geriatrics is not a widely recognized specialty in India unlike the other clinical specialties. Very few institutions have recognized training facilities for geriatrics in India. Consequently and understandably, funding for geriatric studies and research is limited. Urban slums in Mumbai house a sizeable geriatric population, which is a neglected society and vulnerable group as they are not productive hence dependent and are themselves socially withdrawn from society. Hence, planning services for the care of geriatric population in a slum would require information and analysis of existing situation. In the past, few studies have been conducted to assess the health status of old people in and around slums of Mumbai.

Noncommunicable diseases are expected to account for an increasing share of disease burden, rising from 43% in 1998 to 73% by 2020, assuming a continuation of recent downward trends in overall mortality (which have yet to be realized in China and elsewhere). The expected increase is likely to be particularly rapid in developing countries. In India, deaths from noncommunicable causes are projected to almost double from about 4.5 million in 1998 to about 8 million a year in 2020.[5]

In the developing world as a whole, deaths from noncommunicable diseases are expected to rise from 47% of the burden to almost 70%.[6]

There is no exact data system in India in which specific morbidity of old aged people of the country is available. Though there are previous researches conducted by many institutions such as ICMR, NCAER, and ICSSR on health and socioeconomic conditions, many institutions and universities are involved in research on aging.

Though the elderly have increased in number, the welfare plans including health and other social services for elderly are minimal, which is a matter of concern and needs to be addressed so as to give better quality of life.

Approximately 40% of them live below poverty line and another 30% live just above subsistence level.[7] In India, there is no universal health insurance system. Whatever schemes are present are for industrial workers and their families and Central Government Health Scheme covers for central government employees. Few of private health insurance has been introduced since few years, but most of these are for middle age adults who are almost free of any illness.

Bagchi[8] in his study felt that though Indian research studies had concentrated on the quality care in institutions for the aged in India, the results did not give satisfactory lead as to how to support those who were almost destitute. Health care of millions of the elderly in the country was totally absent.

Objective

The aim was to study the morbidity prevalence and patterns in geriatric age group in an urban slum.

Materials and Methods

A community-based cross-sectional study of elderly persons was conducted in an urban slum in the field practice area of Urban Health Centre of a teaching hospital in Mumbai city, from June 2010 to June 2011. The study was conducted in the resettlement colony on the outskirts of Mumbai, situated on harbor line of northeastern end of Mumbai with a population of 1,22,000 according to the 2001 census. The study area was selected by simple random sampling method.

Sample size: Prevalence of at least one morbidity among geriatric population is 88%. On the basis of this prevalence and an allowable error of 5%, the sample size can be calculated by using the formula: $4pq/l^2 = 218.18 \cong 220$ (*p* is prevalance, *q* is 100-prevalance, *l* is permissable error which is 5%).

Data collection: A pilot study on 25 subjects was conducted in this slum area with the initial questionnaire. Following certain minor changes to the initial questionnaire, a final version of the questionnaire was designed and the study continued. Using simple random lottery method of sampling, among 50 plots of Shivajinagar, 22 plots were selected, each

Table 1: Health status of study subjects

Health status	Male (*n* = 65)	Female (*n* = 155)	Total (*n* = 220)
Total no. of subjects with illness	51 (78.46%)	144 (92.90%)	195 (88.63%)
Medical reason for hospitalization in last 1 year	10 (15.38%)	19 (12.25%)	29 (13.18%)
Surgical reason for hospitalization in last 1 year	7 (10.76%)	11 (7.09%)	18 (8.18%)

n, total number of subjects.
Subjects may have more than one condition.

with 200 houses. From the selected 22 plots, 10 houses were selected randomly. After selecting 10 houses, the study subjects were identified by visiting the community; the residents of the house with the person aged 60 years and above was explained the nature, purpose, and objectives of

the study. The person willing to be enrolled as a study subject was interviewed using the pretested questionnaire.

Data analysis: The data were analyzed using the software Statistical Package for Social Science (SPSS), version 16.

Results

In the study, among 220 subjects, 88 (40%) were in the age group of 60–64 years, 64 (29.09%) were in the age group of 65–69 years, 26 (11.18%) were in the age group of 70–74 years, and 21 (9.54%) were in the age group of 75–79 years and above 79 years each. The overall mean age and standard deviation (SD) of study subjects was 67.1 ± 7.29 years. The mean ages of males and females were 68.98 ± 6.36 (SD) and 66.42 ± 4.24 (SD), respectively.

Table 1 shows that among the 220 study subjects, 195 (88.63%) had one or more illnesses, among which 144 (92.90%) were females and 51 (78.46%) were males. Among 220 subjects, 25 (11.86%) were free from illness. Overall, 29 (13.18%) subjects were hospitalized for medical reasons and 18 (8.18%) of them were hospitalized for surgical reasons within the last 1 year.

Female subjects had more number of illnesses than male subjects, but the number of males was marginally high in terms of hospitalization and surgeries.

Table 2: Distribution of symptoms

Symptoms	*N*	%
Diarrhea	8	3.64
Urinary incontinence	10	4.55
Constipation	11	5.00
Burning micturition	17	7.73
Cough	20	9.09
Hard of hearing	20	9.09
Skin eruption	21	9.55
Breathlessness	22	10.00
Headache	26	11.82
Toothache	27	12.27
Backache	45	20.45
Indigestion	45	20.45
Joint pain	48	21.82
Visual problems	51	23.18
Body ache	64	29.09

n, total number of subjects.
Subjects may have reported more than one symptom.

Table 3: System-wise morbidity pattern

System	Male (*n* = 51)	Female (*n* = 144)	Total (*n* = 195)
Hematological disorder (anemia)[a]	30 (58.82%)	127 (88.19%)	157 (80.51%)
Musculoskeletal disorder	22 (43.13%)	72 (50.00%)	94 (48.20%)
Gastrointestinal disorder	16 (31.37%)	64 (44.44%)	80 (44.44%)
Cardiovascular disorder	14 (27.45%)	56 (38.88%)	70 (35.89%)
Oral cavity diseases	19 (37.25%)	50 (34.72%)	69 (35.38%)
Psychiatric illness (depression)[b]	16 (31.37%)	43 (29.86%)	59 (30.25%)
Ocular disorder	23 (45.09%)	35 (24.30%)	58 (29.74%)
Endocrine disorder[c]	9 (17.64%)	14 (9.72%)	23 (11.79%)
Respiratory disorder	8 (15.68%)	14 (9.72%)	22 (11.28%)
Hearing disorder	8 (15.68%)	13 (9.02%)	21 (10.76%)
Genitourinary disorder	4 (7.84%)	13 (9.02%)	17 (8.71%)
Nervous system disorder	10 (19.60%)	3 (2.08%)	13 (6.66%)

n, total number of subjects with illness; *N*, total number of subjects with illness of that particular system.
A subject could have multisystem disorder.
[a]Only anemia was considered among hematological disorders.
[b]Only depression was considered among psychiatric disorders.
[c]Only diabetes mellitus was considered among endocrine disorders.

Table 2 shows that body ache was the most commonly reported symptom by 64 (29.09%) subjects, followed by visual problems by 51 (23.18%), joint pain by 48 (21.81%), indigestion by 45 (20.45%), backache by 45 (20.45%), toothache by 27 (12.27%), headache by 26 (11.81%), and breathlessness by 22 (10%) subjects. Skin eruption, difficulty in hearing, cough, burning micturition, constipation, urinary incontinence, and diarrhea were the other symptoms reported.

Table 3 shows that among the 195 study subjects who reported one or more illnesses, 144 were females and 51 were males. Overall, anemia was the most commonly diagnosed condition in 157 (80.51%) subjects, followed by musculoskeletal disorders in 94 (48.20%), gastrointestinal disorders in 80 (41.02%), cardiovascular disorders in 70 (35.89%), oral cavity problems in 69 (35.38%), depression in 59 (30.25%), ocular problems in 58 (29.74%), diabetes mellitus in 23 (11.79%), respiratory problems in 22 (11.28%), hearing problems in 21 (10.76%), genitourinary problems in 17 (8.71%), and nervous system disorders in 13 (6.66%) subjects.

Among the females in decreasing order, 127 (88.19%) had anemia, 72 (50%) had musculoskeletal complaints, 64 (44.44%) had gastrointestinal complaints, 56 (38.88%) had cardiovascular disorders, 50 (34.72%) had oral cavity problems, 43 (29.86%) had depression, 35 (24.30%) had ocular problems, 14 (9.72%) each had respiratory problems and diabetes mellitus, 13 (9.02%) each had hearing and genitourinary problems, and 3 (2.08%) had nervous system disorders.

Among the males in decreasing order, 30 (58.82%) had anemia, 23 (45.09%) had ocular problems, 22 (43.13%) had musculoskeletal complaints, 19 (37.25%) had oral cavity problems, 16 (31.37%) each had gastrointestinal complaints and depression, 14 (27.45%) had cardiovascular disorders, 10 (19.60%) had nervous system disorders, 9 (17.64%) had diabetes mellitus, 8 (15.68%) each had respiratory and hearing problems, and 4 (7.84%) had genitourinary problems.

A total of 683 illnesses were reported by 195 subjects, that is, the average illness per person was 3.10. The number of illnesses for 51 males and 144 females were 179 and 504, respectively; the average illness per male and female subject was 2.75 and 3.25, respectively.

Discussion

Table 1 presents the morbidity prevalence in the study subjects. Among 220 subjects, one or more morbidities were present in 195 (88.63%). Twenty-five (11.86%) among 220 were free from illness. A total of 683 illnesses were present in these 195 subjects. These morbidities or illnesses included existing or reported morbidities and also new complaints and diagnoses.

Females had a higher morbidity of 144 (92.90%) than the males with 51 (78.46%). Overall, 29 (13.18%) subjects were hospitalized for medical reasons and 18 (8.18%) of them

were hospitalized for surgical reasons within last 1 year. The common reasons for hospitalization were exacerbation of breathlessness, acute gastroenteritis, and heart ailments. The most common surgical procedures performed on females were hysterectomy, cataract surgery, and cholecystectomy, and for elderly males it was cataract surgery and hernia. Single morbidity was seen in 105 (47.73%), two in 65 (29.55%), and more than two in 25 (11.36%) subjects. The average number of current illness reported per subject was found to be 3.10. The average number of illness per male subject was 2.75 and that in females was 3.25.

In Botswana (Africa), Clausen et al.[9] reported an average of 3.3 illnesses per person. Purty and Bazroy[10] in their study reported an average of 2.77 illnesses per elderly subject. The total number of illnesses in 320 subjects was 886. At least one ailment was seen in 72.4% whereas 48.1% and 24.1% had two and three ailments, respectively. Parry et al.[11] reported that in Kashmir geriatric population 89% subjects had at least one morbidity. The proportions of subjects with single morbidity, two morbidities, three morbidities, and more than three morbidities were 88.9%, 69.9%, 47.3%, and 16.9% subjects, respectively. In a more recent study, Deepthi and Kasthuri[12] reported that each elderly subject had an average of 3.07 current illnesses. However, Joshi et al.[13] reported a mean number of 6.1 ± 2.9 years morbidities per subject.

This shows that a wide variation is possible with respect to average morbidity per elderly person, especially when minor illnesses are included along with chronic morbidities. The morbidity pattern describes the most commonly reported symptoms and the involvement of various systems.

Table 2 presents the symptoms of the study subjects. Body ache was the most commonly reported symptom by 64 (29.09%) subjects, followed by visual problems by 51 (23.18%), joint pain by 48 (21.82%), indigestion and backache by 45 (20.45%) each, toothache by 27 (12.27%), headache by 26 (11.82%), and breathlessness by 22 (10%). Skin eruption, difficulty in hearing, cough, burning micturition, constipation, urinary incontinence, and diarrhea were the other symptoms reported. The symptoms did not necessarily indicate the presence of underlying illness.

During the study new cases of diabetes mellitus, hypertension, coronary artery disease, cataract, anemia, deafness, urinary incontinence, and depression were either suspected or diagnosed and were referred for treatment accordingly.

Table 3 shows the system-wise morbidity pattern among subjects. Anemia was the most common morbidity seen in 157 (80.51%) subjects, followed by musculoskeletal disorders in 94 (48.20%). Genitourinary (8.71%) and nervous system morbidities (6.66%) were the least observed.

A study by Joshi et al.[13] in Haryana about the morbidity profile among elderly subjects reported that anemia, dental problems, hypertension, chronic obstructive airway disease, cataract, osteoarthritis, skin/fungal nail infections, urinary incontinence, and senile pruritus were the most common morbidities prevalent. Depression, followed by visual

impairment, chronic cough, and joint pains were some of most common symptoms presented by elderly.

Five conditions—diabetes mellitus, hypertension, bronchial asthma, osteoarthritis, and ischemic heart disease (IHD)—were identified as chronic medical conditions for this study. A total of 136 subjects were found to have either of these conditions (one subject may have one or more of these conditions). It was noted that 58.82% subjects with these conditions received regular treatment. Bronchial asthma was the condition for which subjects took regular treatment in 71.43% cases. It could be noted that other chronic disorders such as diabetes mellitus, hypertension, and IHD also received regular treatment in > 65% cases. This could be considered as a satisfactory trend in spite of a high rate of illiteracy and lack of knowledge about the complications that these conditions could result in.

Active aging is the process of optimizing for health, participation, and security to enhance quality of life as people age. By paying careful attention during younger age, the individual risk of developing diseases can be reduced. Some of the modifiable factors are diet and nutrition, introduction of exercise in early life, maintenance of normal weight, cessation of smoking, cessation of alcohol intake, increase in social activities, screening for hypertension, diabetes mellitus, cancers, nutritional deficiencies, fall risk, depression, and infections at high-risk age.

Conclusion

While cure of disease and prolongation of life are the goals in the care for the young, the goal of care for the elders is mainly to improve the overall health function, comfort, and quality of life. Focus on national health programs and policies that are initiated for geriatric age group needs to be implemented right away in all health institutions and health centers without further delay, so that the society and the younger bring an end to consider the aged group as a burden to them and to the society.

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