

MORBIDITY PROFILE, HEALTH SEEKING BEHAVIOUR AND HOME ENVIRONMENT SURVEY FOR ADAPTIVE MEASURES IN GERIATRIC POPULATION - URBAN COMMUNITY STUDY

*Warbhe Priya A¹, Warbhe Rupesh²

ARTICLE INFO

Received: 10th June 2015

Revised: 24th August 2015

Accepted: 20th September 2015

Authors details: ¹Assistant Professor, Department of Community Medicine, Grant Government Medical College, Mumbai, Maharashtra, India. ²Research Officer, NIRRH, Mumbai.

Corresponding author: Warbhe Priya A Assistant Professor, Department of Community Medicine, Grant Government Medical College, Mumbai, Maharashtra, India

Email: priyawarbhe@gmail.com

Keywords: Geriatric, Morbidity profile, Adaptive measures, Health seeking behaviour, Home environment survey

ABSTRACT

Background: Population ageing is a significant product of demographic transition. Declining fertility and improved health and longevity have generated rising proportions of the older population. Double burden of communicable and non-communicable diseases affects the geriatric segment of the population with variable health seeking behaviour. **Objectives:** To assess morbidity profile, health seeking behaviour and home environmental survey for adaptive measures in geriatric population from an urban community. **Material and Methods:** Cross-sectional study stratified systematic random sampling was applied. Research tool was interviewer based closed ended questionnaire. Adaptive measures as part of environment survey were assessed. Proportions and Pearson's chi-square test were calculated. **Results:** 64.1% participants were from 60-69 years age category, 9.1% current smokers. 94.1% had 1-3 morbidities, 4.1% had 4-6 morbidities .37.3% gave a history of fall and 31.4% history of fracture. 13.6% cataract operation, 16.8% procedure for fracture.10% had dental procedure. 54.2% went to UHC and GOVT/BMC hospitals for treatment and 78.6% received both allopathic and ayurvedic treatment. History of fall was not associated with adaptive measures in the house (p=0.952). **Conclusions:** Majority of the participants suffered from old age related morbidities, hypertension emerged as a major morbidity. Most of the participants relied on government hospitals for treatment. Adaptive measures were lacking in most of the houses.

INTRODUCTION

The world's population is ageing at an uncontrolled rate. Population ageing is a major demographic trend worldwide. Declining fertility and improved health and longevity resulted in rising older population. Older population has also increased because of improvement in health services; educational status and economic development. Ageing is a reward of recent years which is due to improved public health, sanitation and development. "The global population aged 65 and over was estimated to be 506 million as of midyear 2008, about 7 percent of the world's population. (ranging from 13 percent to 21 percent) By 2040, the world is projected to have 1.3 billion older people- accounting for 14 percent of the total. The fastest growing portion of the older population in many nations is the oldest- old, those aged 80 years and above^[3,11,15]"

"India is also in a phase of demographic transition. As per the 1991 census, the population of elderly in India was 57 million as compared to 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 the numbers of elderly in India will increase to 100 million in 2013 and to 198 million in 2030. By the year 2050, the number of elderly people would raise to about 324 million. India has thus acquired the label of an ageing nation with 7.7% of its population being more than 60 years old. India as the second most populous country has 76.6 million people at or over the age of sixty years".^[7]

According to recent WHO projection, over three-quarters of death occurring in the developing world by the year 2020

will be due to non- communicable diseases. Communicable diseases and injuries will contribute to the rest 25% of deaths. Thus there will be double burden in developing countries. This scenario of double burden also affects this older segment of the population. Many diseases have iceberg phenomenon so that submerged aspects are not revealed to the health system unless they are actively searched for. These problems have their effect on the quality of life of the old person. Mental health, social health and financial position of the person gets disturbed due to these problems, which further increases the financial burden on the country for their treatment.^[11]

Disease burden: - Major causes of morbidity among elderly according to ICMR are as follows^[10]

Table 1: Major causes of morbidity among elderly according to ICMR

Diseases	Percentages
Visual impairment	88
Locomotor disabilities	40
Neurological diseases	18.7
Cardiovascular diseases	17.4
Respiratory diseases	16.1
Skin diseases	13.3

Falls are due to the complex interaction between a variably impaired patient and an environmental challenge. With age, balance becomes impaired and sway increases. The resulting vulnerability predisposes the older person to

fall. Most falls occur in or around the home due to environmental obstacles. Adequacy of illumination (older people needs twice as much as younger people); absence of glare and shadows; accessible switches at room entrances; night light in bedroom, hall, bathroom are modification in home environment for elderly. Most falls occurs in or around the home due to environmental obstacles. Floors, stairs, kitchen, bathroom, yard and entrances need adaptive measures as modification in environment for elderly to avoid falls [9].

Studies done earlier on this topic were hospital based and had a rehabilitation approach. Current study has community approach which assesses morbidities in geriatric population. Study also assesses health seeking behavior. Falls and fracture is a common consequence of poor adaptive measures in houses which usually affect the elderly population so a survey of household environment for adaptive measures was carried out.

MATERIALS AND METHODS

This study was carried out at a residential colony in an urban community. The health problems of population from this residential colony is catered by Urban Health Centre which is a part of a tertiary care teaching institute, located in same area. January 2008 – September 2009

Study design: Descriptive Cross sectional study

Inclusion criteria: participants who are willing to participate after taking their written informed consent with age - 60 years and above.

Sample size: Prevalence of 60+ population is 7.3 and applying sample size calculation formula $n = 170$ Sampling method: Stratified systematic random sampling method was used as a sampling technique. Sample size as calculated is 170. 5%, 20%, 35% and 40% of participants out of 170 were recruited from class I to IV respectively for representational purposes. These percentages are as per the record maintained at the urban health centre. A total of 173 households were visited with a response rate of 98%. From some households all geriatric participants fitting the inclusion criteria were included from single house. Hence finally 14, 44, 74 and 88 participants were enrolled for the study from class I to IV respectively. This amounts to a final sample size of 220.^[1]

Ethical approval and Consent: -The study was initiated after written approval from the institutional ethics committee of the parent institution. Informed, valid and written consent was collected from every geriatric participant included in the study.

Pilot study and questionnaire testing: Pilot study was conducted to test the feasibility and accuracy of the proforma. 50 participants more than 60 years of age were interviewed at random. The participants included in the pilot study were not included in the actual study.

Research instrument: - Face to face interview was conducted by the investigator with the questionnaire which is research instrument. It includes socio-demographic data, personal history and past history record of physician diagnosed morbidities and procedure done. It also included questions related to home environment for survey of household lighting and adaptive measures. Age 60 years and above is considered as geriatric age group they are further classified into young-old (60-69 years), old-old (70-

79 years) and oldest-old (80 years and above).^[5]

Statistical analysis: Pearson's chi-square test was applied to test the relationship of categorized independent and dependent variables. If expected number in the cell was below 5 in a table, Fischer's Exact test (Exact Two sided) was used. A p value (significance) of <0.05 is deemed statistically significant. Stata SE 10.1 was used to analyse data.

RESULTS

220 participants were enrolled in the study. 64.1% participants were from young-old (60-69 years) category, 27.7% were from old-old (70-79 years) and 8.2% from oldest-old (≥ 80 years) category. 61.4% participants were female and 38.6% were males. 29.5% were illiterate, 23.6% received primary education, 30.5% received secondary education, 14.1% received higher secondary education and 2.3% participants were graduates. 73.6% were married, 25.9% were widow/widower, one participant was divorced. 70% participants did not receive any pension and 79.5% were economically dependent on other family members (Table 2).

Table 2: Socio-demographic status

Variable	Frequency (n)	%
Age groups (Years)		
60-69	141	64.1
70-79	61	27.7
≥ 80	18	8.2
Gender		
Males	85	38.6
Females	135	61.4
Education		
Illiterate	65	29.5
Primary	52	23.6
Secondary	67	30.5
Higher Secondary	31	14.1
Graduation	05	2.3
Marital status		
Married	162	73.6
Widow/Widower	57	25.9
Divorced/Separated	01	0.5
Pension		
Yes	66	30
No	154	70

83.2% of participants lacked moderate physical activity. 58.6% did not participate in any leisure activity, 25% spend leisure time in reading/writing, and 16.4% had group activity as leisure time spending activity. (Table 3)

Table 3: Physical and leisure time activity status

Variable	Frequency(n)	%
Moderate physical activity		
Yes	37	16.8
No	183	83.2
Leisure time activity		
Reading/writing	55	25.0
Crossword/ Puzzle games	00	0.0
Group activity	36	16.4
Others	00	0.0
None	129	58.6

9.1% of participants were current smokers. 0.9% currently addicted to alcohol. 10% were currently addicted to tobacco and 10% were currently addicted to betel-nut. (Table 4)

Table 4: Addiction status

Variable	Frequency (n)	%
Smoking History		
Non-smoker	171	77.7
Ex-smoker	29	13.2
Current	20	9.1
Alcohol consumption		
Never	168	76.4
Occasional	21	9.5
Ex-drinker	29	13.2
Current	02	0.9
Tobacco addiction		
Never	176	80.0
Ex-addict	22	10.0
Current	22	10.0
Betel nut addiction		
Never	184	83.6
Ex-addict	14	6.4
Current	22	10

Morbidity profile: 19.5% participants suffered from hypertension and O.A., 8.3% suffered from Diabetes mellitus, 7.7% from only hypertension, 6.4% from hypertension and cataract, 5.5% from IHD, 37.7% suffered from other combination of diseases, 4 participants did not suffer from any diseases. 13.6% participants had cataract operation, 16.8% had procedure for fracture, 10% had dental procedure and 26.8% had history of operations for other conditions (Table 5).

Table 5: Morbidity profile

Variable	Frequency (n)	%
Type of morbidities		
Hypertension and O.A.	43	19.5
D.M.	18	8.3
Hypertension	17	7.7
Hypertension and cataract	14	6.4
IHD	12	5.5
Anemia, Hypertension, and O.A.	11	5.0
O.A. and asthma	10	4.5
Hypertension and D.M.	08	3.6
None	04	1.8
Other combination of diseases	83	37.7
History of procedure/operation		
Cataract	30	13.6
Dental	22	10.0
Fracture	37	16.8
Others	59	26.8
Combination	21	9.5
None	51	23.3

1.8% participants had no morbidities, 94.1% had 1-3 morbidities, 4.1% had 4-6 morbidities and none of the participants had 7-9 morbidities. (Table 6)

Table 6: No. of Morbidities

Variable	Frequency (n)	%
No. of morbidities		
0	04	1.8
1-3	207	94.1
4-6	09	4.1
7-9	00	0.0

37.3% participants gave a history of fall and 31.4% gave history of fracture (Table 7)

Table 7: Fall and Fracture

Variable	Frequency (n)	%
Fall history		
Yes	82	37.3
No	138	62.7
Fracture history		
Yes	69	31.4
No	151	68.6

Treatment seeking behaviour: 54.2% participants went to UHC and Govt/BMC hospital for treatment and 78.6% received allopathic and ayurvedic treatments (Table 8).

Table 8: Treatment seeking and treatment received

Variable	Frequency	n (%)
Treatment seeking		
UHC	08	3.6
Govt/BMC hospitals	05	2.3
Private hospitals	21	9.5
UHC and Govt/BMC hospitals	119	54.2
UHC and Private hospitals	19	8.6
Govt/BMC hospitals and private hospitals	19	8.6
UHC, Govt/BMC and private hospitals	29	13.2
Type of treatment received		
Allopathy	25	11.4
Ayurvedic	00	0.0
Homeopathy	00	0.0
Allopathy and Ayurvedic	173	78.6
Allopathy and Homeopathy	04	1.8
Allopathy, Ayurvedic and Homeopathy	18	8.2

Adaptive measures assessment: 12.3 % participants had inadequate lighting in their house. 82.7% participants did not have adaptive measures in house to avoid fall (Table 9).

Table 9: Adaptive measures assessment

Variable	Frequency	n (%)
Household lighting		
Proper	193	87.7
Improper	27	12.3
Adaptive measures		
Yes	38	17.3
No	182	82.7

The association between fall history and household lighting was not statistically significant. (Table 10)

Table 10: Association between fall history and household lighting

Fall history	Household lighting		Total
	Proper	Inadequate	
Yes	76(92.68)	6(7.32)	82
No	117(84.78)	21(15.22)	138
Total	193(87.73)	27(12.27)	220(100)

Pearson's chi square= 2.98, df=1, p=0.084(NS*)

Figures in parenthesis indicates percentages

NS- Not Significant

The association between fall history and adaptive measures in house was not statistically significant. (Table 11)

Table 11: Association between fall history and adaptive measures in house

Fall history	Adaptive measures		Total
	Yes	No	
Yes	14(17.07)	68(82.93)	82
No	24(17.39)	114(82.61)	138
Total	38(17.27)	182(82.73)	220(100)

Pearson's chi square= 0.0036, df=1, p=0.952(NS).

Figures in parenthesis indicates percentages

DISCUSSION

Socio-demographic data from 220 geriatric participants reveals majority of the participants are from young-old category i.e 64.1% were from young-old category remaining 27.7% were from old-old and 8.2% from oldest-old category. Similarly a study carried out in urban area of Kashmir valley shows 66.6% participants were from 65-74 years age group, 26.8% and 6.6% from 75-84 and more than 85 years age group respectively. Gaash B. et al. (2008) [6]. Also a study carried out among elderly people in Northern India had 68% participants from 61-72 age group, 23 % participants from 73-84 age group and 9% from 85+ age group. Kumar R. et al (2003) [12]. As age advances population faces mortality which results in majority as young old population and diminishing oldest-old population. But recent trend shows that the fastest growing portion of the older population in many nations is the oldest- old, those aged 80 years and above due to improvement in health services, sanitation and overall development. In this study 61.4% were female geriatric participants. Similarly study on elderly in Karnataka shows 61.9% and 80.1% males and females respectively in age group 60-69 years. Leena A. et al. (2009) [13]. Females have more life expectancy hence they tend to outnumber the male geriatric participants. In this study 70% of participants did not receive any pension. 60 years and above reflects retired population in India. Loss of work brings economic dependence also most of the participants did not receive any pension which adds to their dependency on other family members [9]. Also study on elderly from an urban slum shows 58.42% participants were economically dependent on their children. Gurav R. et. al. (2002) [8]. In this study 83.2% lacked moderate physical activity. Similarly study of health profile of aged persons in urban field practice areas of medical college Amritsar shows 32.97% of urban aged persons were going

for morning or evening walk. Padda A. et al. (1998) [14]. In the current study 58.6% participants did not participate in any leisure activity, 25% in reading and writing, 16.4% in group activity. Study of health profile of aged persons in urban field practice areas of medical college Amritsar shows 33.69% of urban aged were reading newspaper or books. Padda A. et al. (1998) [14].

History regarding addiction revealed 9.1% were currently smokers. 0.9% currently addicted to alcohol. 10% were currently addicted to tobacco. Study among geriatric population in Udaipur by Choudhary S. et al (2004) had 62.66% non-smokers, 22% current smokers and 10.66% ex-smokers. 4.6% were addicted to tobacco chewing [4]. History regarding past history of physician diagnosed diseases conditions and verification of drug prescription by the investigator revealed that 19.5% participants suffered from hypertension and O.A., 8.3% suffered from Diabetes mellitus, 7.7% from only hypertension, 6.4% from hypertension and cataract, 5.5% from IHD which shows hypertension as the major emerging mortality among the geriatric population. Similar result is seen in a study by Leena A. et al. (2009) on elderly in Karnataka which showed 59.1% had hypertension, 10.3% had diabetes, 41.3% had osteoarthritis [12]. Also study by Bhatia S. et al. (2007) among elderly in Chandigarh showed main health problems among aged were those of the circulatory system 51.2%, with about two-fifth 41.6% suffering from hypertension, followed by those of musculoskeletal system and connective tissue disorders 45.7%, cataract was seen in 18.6% [2].

History regarding past history of operation/ procedure done which is verified by medical documents by investigator revealed that 13.6% participants had cataract operation, 16.8% had procedure for fracture, 10% had dental procedure. Study by Kumar R et al. (2003) carried out among elderly in Northern India shows 27% had undergone a cataract surgery [12].

A count of morbidities in geriatric participants showed 1.8% participants had no morbidities, 94.1% had 1-3 morbidities, 4.1% had 4-6 morbidities and none of the participants had 7-9 morbidities. Study by Gaash B. et al. (2008) carried out in urban area of Kashmir valley shows 88.9% of the study population was suffering from at least one ailment while 69.9%, 47.3% and 16.9% of population, respectively, had two, three and four or more ailments [6]. Study by Kumar R et al. (2003) among elderly people in Northern India shows majority of subjects i.e 42.5% were diagnosed as having 4-6 morbidities, 23% had 7-9, 1-5% had a maximum of 13 and only 0.5% had no morbidities [12].

History regarding fall and fracture revealed 37.3% participants had history of fall and 31.4% had history of fracture. History of fall and fracture is common in old age due to gait and balance impairment. Study carried out by Kumar R et al. (2003) among elderly in Northern India showed 51.5% subjects gave a history of fall and fracture was reported from 21.3% [12].

Treatment seeking behaviour among the geriatric participants showed 54.2% participants went to UHC and Govt/BMC hospital for treatment and 78.6% received allopathic and ayurvedic treatments. Study carried out among elderly people in Northern India by Kumar R. et al (2003) showed that 43.5% participants were seeking

treatment. Of the participants seeking treatment, 35.5% were on allopathic treatment, 2.5% were receiving ayurvedic treatment and 0.5% were using homeopathy^[12]. Current study revealed 12.3 % participants had inadequate lighting in their house. 82.7% participants did not have adaptive measures in house to avoid fall. Though the association between fall history and household lighting was not statistically significant ($p=0.084$), also the association between fall history and adaptive measures in house was not statistically significant ($p=0.952$). Limitation of study- Sample size of 220 participants, association of adaptive measures and fall/ fracture with a larger sample size needs to be further studied.

CONCLUSION

Double burden of communicable and non-communicable diseases affects older section of the population also which is again emphasized in this study and supported by various other studies. Also the fastest growing portion of the older population is the oldest- old, those aged 80 years. Female geriatric participants outnumber the male geriatric participants. Hypertension emerged as major morbidity. Majority of this population suffer from one or more of morbidities, which are potentially preventable This increase in life expectancy coupled with morbidities is just adding years to life. Emphasis should be on adding life to years. Community based health assessment programme with home environment survey coupled with educating the families and caretakers the importance of adaptive measures in house to prevent fall and fracture can prevent functional dependency of these elderly and improve quality of life thus adding years to life.

ACKNOWLEDGMENT

A sincere thank to all the faculty members and the participants of the study who made this study possible.

Conflict of Interest: Nil

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