Morbidity profile and its determinants among the elderly residing in rural field practice area of Shirur, rural health training centre, Bagalkot-North Karnataka-a cross-sectional study

Sachin V. Desai[1,*], Kshitij Arora[2], Ashok S. Dorle[3], Manjula. R[4]

[1]Assistant Professor, [2]Intern, [3]Professor & Head, [4]Associate Professor, Dept. of Community Medicine, S.N Medical College, Bagalkot, Karnataka, India

***Corresponding Author:**
Email: desai.v.sachin@gmail.com

Abstract

Introduction: "Old age is an incurable disease" as said by Seneca. As Sir James Sterling Ross commented, "You cannot heal old age. You protect it; you promote; you extend it". Scientific advances have increased the life span of man. The life expectancy at birth is estimated to be 67.6 in men and 70.1 years in women in developing countries, increasing the number of old age people in the society. Aged elderly, have a number of health problems and the assessment of the problems is of utmost importance and the need of the hour.

Materials and Methods: It was a cross sectional study done in field practice area of Department of Community Medicine, S.N. Medical college, Bagalkot for a duration of four months on 274 elderly participants. Data was collected using a predesigned pretested pro-forma. Morbidity pattern was assessed by clinical examination and appropriate assessment tools.

Results: Majority were young old elderly, with very low levels of literacy, belonging to class IV socioeconomic class. 32.1% were unemployed, 43.4% were Below Poverty Line. Joint families were predominant among the study population i.e. 66.8%. Majority of the elderly i.e. 94.9% were living with their families. Generalized weakness, joint pain, loss of appetite were the predominant complaints beginning in the young old i.e. in 60-74years. Diabetes, Hypertension, Upper GI system morbidities, ophthalmic morbidities and Hearing impairment were very common in the old age group (75-89years).

Conclusion: The young old elderly suffered from constitutional symptoms, and the old elderly suffered from non-communicable diseases.

Keywords: Morbidity profile, Determinants, Elderly, Rural area.

Introduction

Ageing is a natural process and everyone ages from the day of conception. In India, 8.5%[1] of total population is above the age of 60years in 2015. It is expected to touch 17% mark by 2050.[2] The discoveries in medical sciences and improved social conditions during the past decades have increased the life span of man to 67.6 years in men and 70.1 in women.[3] This leads to continuous increase in the number of elderly in the society. Hence the current study was done to know the prevalence of Geriatric Morbidities among rural elderly & the determinants which influence the morbidity profile of these rural elderly.

Materials and Methods

It was a community based cross-sectional study in rural field practice area of Department of community medicine, S. N. Medical College, Bagalkot for a period of four months from June 2016 to October 2016. Elderly above 60 years residing for more than one year in the study area, were included in the study. Deaf, dumb, visually impaired elderly with psychiatric morbidities were excluded from the study.

Sample size calculation done using Open Epi Software 2.3.1[3] At 95% confidence level; According to the study conducted, 'Prevalence of Musculoskeletal Disorder (Ashok Kumar T)[4] in elderly'-23.6=P At 5% absolute precision, sample size calculated is 274.

Ethical clearance has been obtained from the Institutional Ethical Committee.

As per the Community Need Assessment (CNA) [5] survey, demographic details of the elderly population residing in Shirur, RHTC was demarcated. Using simple random sampling technique with the help of a computer generated random number table, elderly coming under the inclusion criteria were selected from the study area till the sample was completed. Written informed consent of the selected subjects was taken. Using predesigned pretested questionnaire socio-demographic details were collected. Clinical examination was done. Anaemia was diagnosed by clinical examination of nails and conjunctiva mucosa. Blood pressure was measured using mercury sphygmomanometer in supine position. Vision was assessed using Snellen's chart.[6] Vision less than 6/60 to counting fingers up to ½ meters was further evaluated for cataract changes in the lens. Elderly with history of joint pain, swelling and restriction of movements were considered to have osteoarthritis. Obesity was assessed by calculating Body Mass Index (BMI)[7] (Weight in kg/height in metre^2). BMI more than 25 were classified as overweight. Presence of basal crepitation and chronic cough were considered to have respiratory pathology. Relevant Past and Personal history was assessed to find out the factors affecting the current morbidity status. The morbidities were classified

as per the international classification of diseases 11th revision.[8]

Results

Majority of the elderly were males, belonging to young old age group (60-74 years)[9] with literacy levels up to primary school among 23.1%. With increasing age the number of unemployed elderly were more. 43.4% were below poverty line.[10] Joint families were predominant among the study population i.e. 66.8%. Majority of the elderly i.e. 94.9% of the elderly were living with their families. Generalized weakness 181(66.1%), joint pain 184 (67.1%), loss of appetite 113(41.2%) were the predominant complaints as described by the elderly, beginning in the young old (60-74years). Common in the old age group (75-89years) were the following morbidities: gastrointestinal problems (32.7%) followed by cardiovascular problems (27.3%), Respiratory problems (22.2%), and Central nervous system problems (17.5%) and17.5% were diabetic patients as identified by the researcher by clinical examination. None of the elderly underwent any biochemical tests.

Table 1: Socio demographic details of study participants.

Socio Demographic Variables	Males(n=159)		Females(n=115)		Total (%) (n=274)	
AGE(yrs.)	No.	%	No.	%		
60-74 (Young-old)	132	48.1	103	37.5	235(85.6)	χ^2=2.343 p=0.126
75-89 (Old-old)	27	9.8	12	4.3	39(14.4)	
Education						
Illiterate	67	24.4	89	32.4	156(56.9)	χ^2=5.937 p=0.430
Primary	43	15.6	20	7	63(22.9)	
High school	33	12	4	1	37(13.5)	
PUC	3	1	2	1	5(1.8)	
Diploma	3	1	0	0	3(1)	
Graduate	2	1	0	0	2(1)	
Post-graduate	8	2.91	0	0	8(2.9)	
Socioeconomic status (Modified BG Prasad Classification.)						
Class 1	10	3.64	4	1.45	14(5.09)	χ^2=0.819 p=0.936
Class 2	17	6.20	14	5.10	31(11.3)	
Class 3	46	16.78	29	10.58	75(27.36)	
Class 4	58	21.16	42	15.32	100(36.48)	
Class 5	28	10.21	28	10.21	56(20.42)	
Past morbidity						
Diabetes	31	11.31	17	6.20	48(17.5)	χ^2=0.282 p=0.595
Hypertension	29	10.58	18	6.30	47(16.88)	χ^2=1.123 p=0.289
Depression	9	3.28	6	2.18	15(5.46)	χ^2=8.630 p=0.03* (statistically significant)
Past surgeries	67	24.45	49	17.88	116(42.33)	χ^2=0.017 p=0.897
Malabsorption	4	1.45	2	1	6(2.45)	χ^2=23.993 p=0.000* (statistically significant)
Asthmatic attacks	18	6.56	14	5.10	32(11.66)	χ^2=3.340 p=0.064
Past illness	4	1.45	4	1.45	8(2.9)	χ^2=0.782 p=0.376
Blood transfusion	6	2.18	3	1	9(3.18)	χ^2=1.544 p=0.214
Previous hospitalization	28	10.21	19	6.93	47(17.14)	χ^2=2.864

						p=0.091
Nil Morbidity	48	17.5	47	17.3	95(34.8)	
Marital status						
Unmarried	1	0.5	3	1	4(1.5)	χ^2=6.958 p=0.31
Married	136	49.6	85	31.02	221(80.62)	
Widow/widower	22	8.02	29	10.5	51(18.52)	
Divorcee	-	-	-	-	-	
Type of family						
Joint	100	36.49	84	30.8	184(67.29)	χ^2=2.490 p=0.477
Nuclear	54	19.70	30	10.94	84()	
Broken	3	1	3	1	6(2)	
Problem	2	1	0	0	2(1)	
Living with family						
Yes	151	55.10	111	40.51	262(95.61)	χ^2=1.031 p=0.597
No	8	2.91	6	2.18	14(5.09)	
Type of diet						
Veg	50	18.24	42	15.32	92(33.96)	χ^2=10.332 p=0.006* (statistically significant)
Mixed	105	38.32	76	27.73	181(66.05)	
Habits						
Smoking	80	29.19	15	5.47	95(34.66)	χ^2=11.917 p=0.003* (statistically significant)
Tobacco chewing	76	27.73	48	17.5	124(45.23)	χ^2=13.115 p=0.001* (statistically significant)
Neither	3	1	52	18.97	54(19.97)	
Family history						
Diabetes	11	4.01	5	1.82	16(5.83)	χ^2=0.887 p=0.346
Hypertension	7	2.55	1	0.5	8(3.05)	χ^2=0.020 p=0.887
Dementia	1	0.5	0	0	1(0.5)	Fishers exact p=1.000
Asthma	13	4.74	3	1	16(5.74)	χ^2=0.887 p=0.346
Cancer	1	0.5	0	0	1(0.5)	Fishers exact p=1.000
Depression	2	1	0	0	2(1)	Fishers exact p=1.000
Oral hygiene						
Good	94	34.3	80	29.19	174(63.49)	
Poor	65	23.72	37	13.5	102(37.22)	χ^2=1.889 p=0.169
Body mass index						
<18.5 kg/m2 Underweight	33	12	28	10.2	61(22.2)	
18.5-22.9 kg/m2 Normal	83	30.2	65	23.7	148(53.9)	
23-24.9 kg/m2 Overweight	24	8.7	9	3.2	33(11.9)	
25-29.9 kg/m2 Pre-obese	6	2.1	7	2.5	13(4.6)	
Obese (=>30)						
30-40 kg/m2 Obese	7	2.5	6	2.2	13(4.7)	
40.1-50 kg/m2 Morbid obese	3	1	2	1	5(2)	
>50 kg/m2	1	-	0	-	1(0.7)	

Super obese						
Mid upper arm circumference						
<24 cms	87	31.7	71	25.9	158(57.6)	χ^2=36.803 p=0.001* (Statistically significant).
>24 cms	72	26.4	44	16	116(42.4)	
Waist-hip ratio						
<0.95 for men/0.85 for women	157	57.2	100	36.4	257(93.6)	χ^2=1.012 p=0.315
>0.95 for men/0.85 for women	2	-	15	5.4	17(5.4)	

χ^2=chi square *= statistically significant

Table 2: Morbidity profile of the elderly participants.

Morbidity profile of the elderly participants	Gender		ICD-11 CODING
Organ system involved			
	Male (no.)	Female (no.)	Code
Nervous system			
Parkinson's disease	24	9	8A00.0Z
Tremor	13	2	
Small handwriting	2	0	
Stooping gait	15	7	
Constipation	8	1	
Soft/low voice	14	1	
Loss of smell	6	0	
Trouble sleeping	14	6	
Trouble swallowing	12	2	
Masked face	4	0	
Trouble sleeping	14	6	
Cardiovascular system			
Hypertension	28	17	BA00.Z
Pallor (Conjunctiva)	112	82	MC16
Clubbing (Digital clubbing)	7	7	EE10.0
Respiratory system			
Cough	70	29	MD12
Breathlessness (Dyspnoea)	77	30	MD11.5
Gastrointestinal system			
Vomiting	25	13	MD90.1
Acid Hypersecretion.	45	26	DA41.2
Dysphagia	24	13	MD93
Food Regurgitation (vomiting)	21	13	MD90.1
Diarrhoea	16	10	ME05.1
Constipation	26	12	ME05.0
Blood in stools	2	3	ME24.A4
Localised Abdominal pain (unspecified)	31	23	MD81.1Z

Discussion

The present community based study in rural field practice area of Shiv Ganga Rural Health Training Centre, Shirur, with a sample size of 274 revealed a moderate prevalence of morbidity 65.4%.

A study carried out in Southern part of India reported a similar result that is a prevalence of 82.9% in the age group of 60 years and above[11]. In our study, majority were male elderly population, coinciding with the Munshi et al.[12]

Findings with (42%) being women and rest being men. Since our study was carried out in the most rural of Karnataka, more than half (56.9%) of the elderly were illiterate, followed by primary school (22.9%), high school 13.5%, Pre-University College (1.8%), graduate and above (3.9%). The findings were very similar to Kamble SV's Verma V, Ghosh A, Srinivas PJ[13-16] studies revealing the illiterate population to be higher (59.86%). Health is intimately linked with the level of literacy since literacy enables greater awareness about their health needs, utilization of health‐care services, and

appropriate intake of medications. Most of the elderly are living with their spouse, i.e. (80.62%), widows were (8.02%) and widowers were (10.5%). Majority of the families (67.29%), were living in joint families and (20.42%) belonged to class II &below, only (5.09%) were of class I socio-economic status as per modified BG Prasad scale May 2015 AIPCI 273. The 52nd round of NSSO also showcased a similar picture of the poor situation of the elderly in India.[17] The average number of morbidity per person in our study was calculated to be 3.37, with only few (34%) of them being free from any form of morbidities. These findings are similar to the study done by Purty et al[18] in the rural areas of Tamil Nadu, where the average number was recorded as 2.77and Swami et al[19] reported 3.28 among the elderly in Chandigarh. The findings also find similarity in the Kashmir study by Parray et al, [20] where there was a total of 632 morbidities and the average number of illness per person was calculated to be 3.28. It was also observed that in our study, there was a total of 924 morbidities (multiple morbidities) among the 274 elderlies, with males contributing to majority (66.2%) of the total morbidities. The most common morbidities suffered by the elderly in this study were gastrointestinal problems (32.7%). This was followed by cardiovascular problems (27.3%), respiratory problems (22.2%), and Central nervous system problems (17.5%). Only (16.88%) of them were hypertensive and (17.5%) were diabetic. 11.67% of the elderly gave history of asthmatic attacks. Our study did not find any association between gender, level of education, occupation, and morbidity pattern of the elderly. This is found to be similar to George LS et al findings.[21] In current study, majority of the study population doesn't know about family history of some chronic diseases, whereas those having family history, diabetes was the commonest (5.83%), followed by asthma (5.74%), which was similar to Srinivas PJ[16] who found most common history of previous illness was hypertension 12% and diabetes mellitus 6% in both rural and urban areas. Present study showed that tobacco chewing (45.23%) as the commonest form of addiction, while (34.66%) are addicted to smoking. George et al,[21] study showed that smoking tobacco in (31.2%) as the commonest form of addiction, while (13.8%) use non-smoke tobacco (chewable form such as khaini, gutkha etc.) and (12.7%) addicted to alcohol in their study. Regarding morbidity profile, we observed that joint pain was the commonest (67.1%) morbidity followed by generalized weakness (66%). Persons suffering from nutritional Anaemia (74.8%) found in present study was higher (40%) than Srinivas PJ, Kumar R, Mundada V, Hameed S.[16,22-24] studies. Impaired vision (22.2%) found in present study was almost similar to lower prevalence (24.2%, 27% and 31.32%) respectively of impaired vision shown by Kumar R, Srinivas PJ and Ghosh A.[16,22,24] Impaired hearing (21.5%) in current study was almost similar (24.8%) to Mundada V study.[23] Hypertension (3.05%) was much less than that of Mundada V, Kamble SV, Rafiq M and Karmakar N et al.[23,13,25-26] Much higher prevalence was seen in Kumar R and Hameed S.[22,24] Diabetes mellitus (5.83%) in present study was similar (4% and 5.9%) respectively to findings by Kamble SV, Srinivas PJ.[13,16] Higher (12.7%, 19.7%, and 32.3%) respectively, diabetes was shown by Kumar R, Hameed S and Rafiq M. [22,24,25]

Conclusions

Generalized weakness, joint pain, loss of appetite were the predominant complaints beginning in the young old (60-74 years). Diabetes, hypertension, Upper GI system morbidities, ophthalmic morbidities and hearing impairment were very common in the old age group (75-89 years).

Recommendations

Regular screening of all elderly at the rural health training centres, primary health centres and urban health centres. Establishing preventive geriatric clinics at these health centres. Rehabilitation to the elderly who have suffered disabilities due to these morbidities. Self-care awareness programmes for the elderly regarding healthy lifestyle for graceful ageing.

Acknowledgements: To all the study participants.

Conflict of Interests: None.

Funding for the Study: None.

Limitations of the Study: No biochemical tests were done to detect specific morbidities.

References

1. Wan He, Daniel Goodkind, Paul Kowal, An ageing world 2015, [online]. March 2016 [Cited on 2018 July 05]; Available from URL: http://www.nih.gov/news-events/news-releases/worlds-older-population-grows-dramatically.pdf
2. India life expectancy at birth 2017[Online] March 2017[Cited on 2018 July 05]; Available from URL: http://www.Indexmundi.com/India/life_expectancy_at_birth.html
3. Open Source Epidemiological Statistics for Public Health version 3.01 April 2013[Cited on 2018 July 05]; Available from URL:http://www.openepi.com/Menu/OE_Menu.htm
4. Kumar, A. T., K. R. Sowmiya, and G. Radhika. "Morbidity pattern among the elderly people living in a Southern Rural India-A cross sectional study." *Nat J Res om Med.* 1.1 2012:15-9.
5. Community Need Assessment. Atlanta, GA: Centres of Disease control and prevention (CDC), 2013[Cited on 2018 July 05]; Available from URL: https://www.cdc.gov/globalhealth/healthprotection /fetp/training_modules/15/community-needs_pw_final_9252013.pdf.
6. Snellen eye test chart interpretation March 2018[Cited on 2018 July 05]; Available from URL:https://www.precision-vision.com/snellen-eye-test-charts-interpretation.html

7. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies [Online]. [Cited 2018 July 5] THE LANCET Volume 363, No. 9403, p157–163, Available from: URL: http://dx.doi.org/10.1016/S0140-6736(03)15268-3.
8. ICD-11Mortality and Morbidity statistics[Online].Cited on 2018 August 13];Available from URL: https://icd.who.int/devct11/icd11_mms/en/current#/
9. Definition of Young old March 2018[Cited on 2018 July 05]; Available from: https://medical-dictionary.thefreedictionary.com/youngold.htm.
10. B G Prasad's socioeconomic scales for 2018 [Online]. [2018 July 5] Available from: URL: http://prasadscaleupdate.weebly.com
11. Definition of an older or elderly person. April 2018[Cited on 2018 July 05];Available from URL: http://www.who.int/healthinfo/survey/ageing-defnolder/en/.html
12. Munshi YI, Iqbal M, Rafique H, Ahmad Z. Geriatric morbidity pattern and depression in relation to family support in aged population of Kashmir valley. *Internet J Geriatr Gerantol* 2008; 4:18‑22.
13. Kamble SV, Ghodke YD, Dhumale GB, Avchat SS, Goyal RC. Health Status of Elderly Persons in Rural Area of India. Indian Medical Gazette-August. 2012:295-99
14. Verma V, Prakash S, Parveen K, Shaikh S, Mishra N. A comparative study of morbidity pattern in elderly of rural and urban areas of Allahabad district, Uttar Pradesh, India. *Int J Com Med Public Heal.* 2016;3(5):1152-6.
15. Ghosh A, Sarkar D, Pal R, Mukherjee B. A Profile of Common Morbidities among Elderly Rural Indian Population. Am J Pub Heal Res. 2015;3(5A):29-33.
16. Srinivas PJ, Manjubhashini S. A Study on Morbidity Profile among Elderly Population in Visakhapatnam District, Andhra Pradesh. *(IOSR-JDMS).* 2014;13(9):21-25.
17. Government of India. National Sample Survey‑ 52nd Round. Morbidity and Treatment of Ailments. July 1995‑ June 1996; Report No. 441. Last accessed on [2016 Aug 8]. Available from URL: http://www.mahades. maharashtra.gov. in/display RepForCat.do? rep CatId = NSS
18. Purty AJ, Bazroy J, Kar M, Vasudevan K, Veliath A, Purushottam P. Morbidity pattern among the elderly population in the rural area of Tamil Nadu, India. *Turk J Med Sci.* 2006;36:4550.
19. Swami HM, Bhatia V, Dutt R, Bhatia SP. A community based study of the morbidity profile among the elderly in Chandigarh, India. Bahrain Med Bull 2002; 24:13‑6.
20. Parray SH, Ahmed D, Ahmed M, Gaash B. Morbidity profile of geriatric population in Kashmir, India. *Indian J Pract Doct.* 2008;4:1-2.
21. George LS, Deshpande S, Krishna Kumar MK, Patil RS. Morbidity pattern and its sociodemographic determinants among elderly population of Raichur district, Karnataka, India. *J Family Med Prim Care.* 2017;6:340-4.
22. Kumar R, Bahal SP, Srivastava A. Morbidity pattern of geriatric population in rural areas of western Uttar Pradesh. *Inter J Medic Sci and Pub Heal*. 2016;5(3):430-33.
23. Mundada V, Jadhav V, Gaikwad AV. Study of addiction problems and morbidity among geriatric population in rural area of Aurangabad district. *J Midlife Health.* 2013;4(3):172–5.
24. Hameed S, Kumar N, Naik PM, Sachidananda K, Prasanna KS. Morbidity Pattern among the Elderly Population in A Rural Area of Dakshina Kannada, Karnataka–A Cross Sectional Study. *Nat J Com Medic.* 2015;6(2):222-25.
25. Rafiq M, Yasmeen, Ashfaq, Shalinder, Rifat. Health Problems of the Elderly in Budgam District (J&K): A Cross Sectional Study. *Inter J Contemporary Medic Res.* 2016;3(12):3456-58.
26. Karmakar N, Nag K, Datta A, Datta SS, Bhattacharjee P. A cross-sectional study on morbidity pattern of elderly population residing in a rural area of Tripura. *Int J Res Med Sci* 2017; 5:5030-5.