Frontiers in Health Informatics
ISSN-Online: 2676-7104
www.healthinformaticsjournal.com
2024; Vol 13: Issue 8
Open Access

Prevalence of non-communicable disease (ncd) in geriatrics population of kalaburagi district: a cross-sectional study in rural field practice area.

Dr Aditya Telkar[1] ,Dr S R Nigudgi[2] ,Dr Ravikumar Kurle[3]
[1]Assistant Professor Dept of Community Medicine ESIC Medical College Kalaburagi Email:- adityatelkar8@gmail.com
[2]Professor & HOD Dept of Community Medicine TRR Medical Science College Inole Patanchreu, Telengana
[3]Associate Professor Dept of Community Medicine M R Medical College Kalaburagi Email:- raviskurle@gmail.com

Cite this paper as: Dr Aditya Telkar ,Dr S R Nigudgi ,Dr Ravikumar Kurle (2024). Prevalence of non-communicable disease (ncd) in geriatrics population of kalaburagi district: a cross-sectional study in rural field practice area.. *Frontiers in Health Informatics*, *13 (8) 3263-3270*

Abstract:

Context/Background:

According to a United Nations report, the worldwide total population of geriatrics was 703 million (9%) in 2019. In India, the geriatric population is expected to increase to 198 million by 2030. As people age, they are more prone to both communicable and non-communicable diseases. In 2014, the prevalence of morbidity increased from 30% to 37% among elderly population. However, most of the available studies in India on morbidity are disease-specific and do not provide a comprehensive knowledge on non-communicable diseases as a whole.

Aims/Objectives:

1. To estimate the prevalence of non-communicable disease (NCD) in the elderly.
2. To assess the risk factors associated with non-communicable disease.

Methodology:

A study was conducted among elderly people living in rural areas of Kalaburagi district, Karnataka. The study included participants aged 60 years and above, and a sample size of 193 was determined. The researchers used a pre-designed, pre-tested, and semi-structured questionnaire to collect information about the participants' morbidity status and risk factors. The collected data was recorded in Microsoft Excel Sheets 2013 and analyzed using SPSS version 25.0 to calculate frequencies and percentages. Before collecting data, the participants were given informed written consent in their local language, Kannada.

Results:

Hypertension is the most prevalent morbidity NCD in the Rural elderly population of 41.45% of Kalaburagi CHC Hebbal. They were then followed by diabetes 24.35 % and Asthma 0.52%. Chewing tobacco, Alcohol consumption, Age, Type of housing, water supply, and sanitation were found to have significant associations with disease causation in the elderly population.

Conclusions:

Non-communicable diseases (NCDs) such as hypertension, diabetes, and asthma can be prevented by reducing high-risk factors such as unhealthy lifestyle habits, modifying one's diet, and changing habits related to alcohol and tobacco consumption. As people age, the likelihood of developing NCDs increases. Environmental factors can also contribute to the development of these diseases by acting as risk factors.

Key-words:

Rural population, non-communicable diseases, Elderly Morbidity, NCD Risk factor, Geriatrics population.

Main Article

Introduction:

The pace of the aging population is much faster than in the past. All countries face major challenges to ensure that their health and community are ready to make the best of this demographic shift[1]. In developed countries, the proportion of the elderly will increase from 22.4 % in 2012 to 31.9 % in 2050. In least developed countries, the proportion of the elderly in 2050 is projected to be below 11 percent[2]. In India, the prevalence of morbidity in the elderly increased from 30 % (1991) to 37 % (2011). Further hospitalization was more common among the Elderly with severe morbidities; not astonishingly, in the year 2014 estimated that the rate of hospitalization amongst the elderly is much higher than the general residents. Furthermore, while the morbidity prevalence rate is higher among elderly women, inpatient admission is lower than for men indicating gender differentials in health maintenance[3,4]. Looking at the growing concern on morbidity in India, there is a requirement for a better understanding of the epidemiology of morbidity of NCD to develop interventions to prevent it and cater needs of geriatric people. So, an intensive study on morbidity among the Rural elderly population is essential to address the multiple health problems to reduce the NCD burden among the elderly.[10]

Objectives:

1. To estimate the prevalence of non-communicable disease (NCD) in the elderly.
2. To assess the risk factors associated with non-communicable disease.

Methodology:

Sources of Data

According to the formula

$n=4pq/L^2$

n=sample size
p=prevalence rate
q=100-prevalence rate (100-p)
L=allowable error taken as 10% of p

Therefore,

p = 52% q= (100 –52) =48

L = 10% of p =5.2

$n = 4pq/L^2$

$$n = \frac{4\times52\times48}{5.2\times5.2}$$

$$= 369.23 \approx \mathbf{370}$$

The total sample estimated was 370 with an equal distribution of 185 participants in both urban and rural field practice areas. The study was carried out in the areas of the Rural Health Training Centre (RHTC) at Hebbal, Kalaburagi, Karnataka

Study Design: Community-based Cross-sectional study

Study Period: 18 months (Nov 2018–April 2020)

Inclusion criteria :

1. Individuals aged ≥60 years who are inhabitants for ≥5 years in the field practice area.
2. People who are willing to participate.

Exclusion criteria :

1. Elderly who are terminally ill.
2. Noncooperative and non-responsive.

Sampling technique

The total sample size drawn is **193** (extra subject taken to avoid error) from the rural elderly population in the selected area of Hebbal. A house-to-house survey was conducted and the number of persons aged 60 years and above were interviewed. A systematic random sampling technique was used.

Collection of data:

A house-to-house survey was conducted to know the number of persons aged 60 years and above. Systematically random sampling was done by picking every 10th unit at regular intervals.

- The houses are numbered first.
- Then a number is selected at random between 1 and 10 (say K).
- Then every 10th number is selected from that point on K, K+10, K+20, K+30, etc.

The study was ethically approved by the ethical committee of the Institution. After obtaining informed consent regarding, the nature, purpose, and objectives of the study, the eligible participants for the study. The person was interviewed using the pre-tested, pre-validated proforma. The proforma Consisted of socio-demographic details, general physical and systemic examination. Informed written consent was taken in their local language (Kannada).

Data Analysis:

The data was entered in a Microsoft 2013 Excel sheet and they were analysed using IBM SPSS version software 25. The data were expressed in terms of frequency, mean and standard deviation (SD), and for qualitative data chi-square test and Fischer exact test were applied, and for quantitative data applied to test the significance and association between risk factors. A *p*-value of less than 0.05 was considered as significant.

Results:

Out of 193 elderly participants residing in the rural area of Hebbal, Kalaburagi; the study showed the mean age of the rural population was found 64.23 years and a Standard deviation of 5.62. Table No. 1 and Figure No. 1 depict the prevalence of NCD morbidity in study participants of rural areas. Table No. 2 shows Morbidity and Risk Factor associations such as age, sex, type of house, and overcrowding; Table No. 3 Environmental factors like water supply, latrine, nature of work, and socio-economic class. Table No. 4 shows the relationship between morbidity and risk factors like the Habit of smoking, chewing tobacco, and Alcohol. The chi-square test was applied to calculate the *p-value*; Yates correction was used for cell values containing ≤ 5 counts.

Total population of 193 with 121 suffering from NCD morbidity and 9 having any 2 Co-Morbidity. 121 (62.69%) of the elderly population had morbidity and 72 (37.31%) of the normal population had no morbidity.

Our study found that there is a significant association between age and morbidity ($p = 0.019$). The percentage of morbidity tends to increase with age. No significant association between gender and morbidity was found ($p = 0.32$). There is a significant association between the type of house and morbidity ($p = 0.0001$). Individuals with pucca houses have lower morbidity rates compared to those with kutcha or semi-pucca houses. No significant association between overcrowding and morbidity was observed ($p = 0.92$).

There is a significant association between water supply and morbidity ($p = 0.001$). Individuals with bore well water supply have higher morbidity rates compared to those with tap water. There is a significant association between the type of latrine and morbidity ($p = 0.001$). Individuals practicing open-air defecation have higher morbidity rates. There is a significant association between the nature of work and morbidity ($p = 0.03$). Individuals with heavy physical work tend to have higher morbidity rates. There is a significant association between socio-economic class and morbidity ($p = 0.01$). Lower socio-economic classes exhibit higher morbidity rates.

There is a significant association between alcohol consumption and morbidity ($p = 0.008$). Non-drinkers have lower

morbidity rates. Chewing Tobacco with Areca Nut: There is a significant association between chewing tobacco and morbidity (p = 0.001). Regular chewers have higher morbidity rates. No significant association between diet and morbidity was observed (p = 0.43).

These findings suggest potential correlations between certain demographic and lifestyle factors and the prevalence of specific health conditions in the studied population. It's essential to interpret these results cautiously, considering the limitations of the study and the specific context.

Table 01: - Prevalence of NCD Morbidity in Rural.

Morbidity	Frequency (N=193*)	Percentage (%)
Hypertension	80	61.54
Diabetes	47	36.15
Asthma	1	0.77
Myocardial Infarction	1	0.77
Scoliosis	1	0.77
Total	**130****	**100**

* Person without morbidity 72.

**Elderly population having co-morbidity.

Table 02: - Morbidity and risk factor association

Variables		Morbidity (N=193)		**Total**	*p* Value
		Present	Absent		
		Count (%)	Count (%)		
Age	60 - 65	94(64.83%)	51(35.17%)	145 (100%)	0.019*
	65 - 70	16(59.26%)	11(40.74%)	27 (100%)	
	70 - 75	9(81.82%)	2(18.18%)	11 (100%)	
	75+	2(20%)	8(80%)	10 (100%)	
Gender	Female	71(65.74%)	37(34.26%)	108 (100%)	0.32
	Male	50(58.82%)	35(41.18%)	85 (100%)	
Type of House	Kutcha	4(50%)	4(50%)	8 (100%)	0.0001*
	Pucca	6(18.18%)	27(81.82%)	33 (100%)	
	Semi pucca	111(73.03%)	41(26.97%)	152 (100%)	
Overcrowding	Absent	63(62.38%)	38(37.62%)	101 (100%)	0.92
	Present	58(63.04%)	34(36.96%)	92 (100%)	

**p* Value <0.05 statistically significant

Table 03: - Morbidity and risk factor association

Variables		Morbidity (N=193)		**Total**	*p* Value
		Present	Absent		
		Count (%)	Count (%)		
Water Supply	Tap	10(20.83%)	38(79.17%)	48 (100%)	0.001*
	Bore well	109(80.74%)	26(19.26%)	135 (100%)	
	Well	2(100%)	0	2 (100%)	
	Other	0	1(100%)	1 (100%)	
	Multiple sources	0	7(100%)	7 (100%)	

Latrine	Water sealed	13(36.11%)	23(63.89%)	36 (100%)	0.001*
	Borehole	2(100%)	0	2 (100%)	
	Open air defecation	106(68.39%)	49(31.61%)	155 (100%)	
Nature of work	Sedentary work	44(52.38%)	40(47.62%)	84 (100%)	0.03*
	Moderate work	46(68.66%)	21(31.34%)	67 (100%)	
	Heavy work	31(73.81%)	11(26.19%)	42 (100%)	
Socio-Economic Class (Modified Kuppuswamy's Classification 2020)	Upper class	0	1(100%)	1 (100%)	0.01*
	Upper Middle class	1(14.29%)	6(85.71%)	7 (100%)	
	Lower Middle class	3(37.5%)	5(62.5%)	8 (100%)	
	Upper Lower class	26(65%)	14(35%)	40 (100%)	
	Lower class	91(66.42%)	46(33.58%)	137 (100%)	

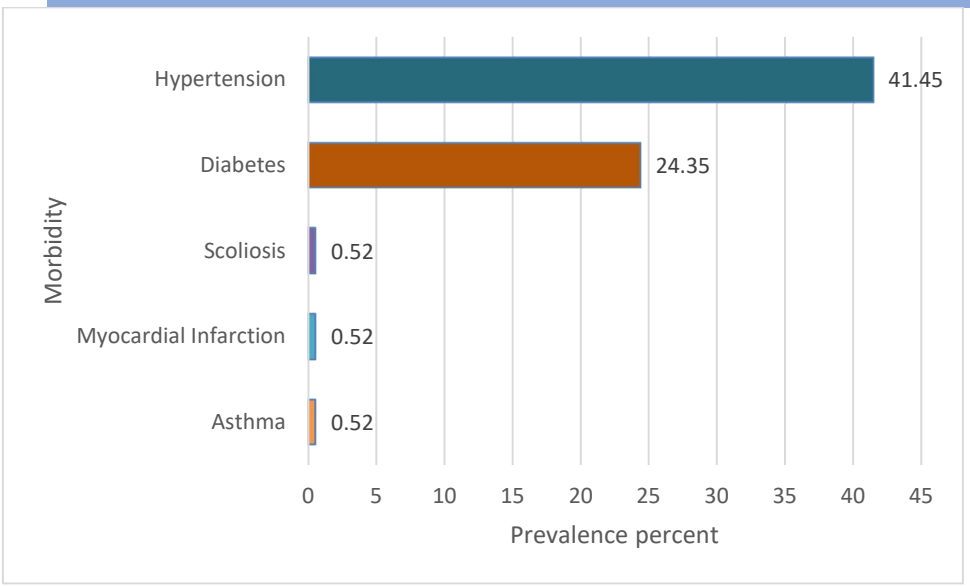
*p Value <0.05 statistically significant

Table 04: - Morbidity and risk factor association

Variables		Morbidity (N=193)		**Total**	p Value
		Present	Absent		
		Count (%)	Count (%)		
Smoking Tobacco	Non-Smoker	103(63.98%)	58(36.02%)	161 (100%)	0.50
	Smoker	15(53.57%)	13(46.43%)	28 (100%)	
	Quit Smoking	3(75%)	1(25%)	4 (100%)	
Alcohol	Never	109(66.06%)	56(33.94%)	165 (100%)	0.008*
	Past User	0	3(100%)	3 (100%)	
	Occasional	9(64.29%)	5(35.71%)	14 (100%)	
	Regular	3(27.27%)	8(72.73%)	11 (100%)	
Chewing Tobacco with (Areca nut)	Never	110(68.32%)	51(31.68%)	161 (100%)	0.001*
	Occasional	0	3(100%)	3 (100%)	
	Regular	11(37.93%)	18(62.07%)	29 (100%)	
Diet	Mixed	120(62.07%)	72(37.5%)	192 (100%)	0.43
	Veg	1(100%)	0	1 (100%)	

*p Value <0.05 statistically significant

Figure 01: -Prevalence of NCD Morbidity in Rural



Discussion:

Most of the study subject that is 172 (89.12%) belong to age of 60-70 years, 11 (5.69%) people were in age group of 71-75 years and 10 (5.19%) people were age of 75 years and above. Comparing to Lena A *et al* in Udupi it was 47.25% age of 60-70 years, 37.8% people were in age group of 71-79 years and 15% people were in age group of 80 years and above.[5] Karmarkar N *et al* in Tripura it was 52.7% age of 60-70 years, 35% people were in age group of 71-79 years and 11.3% people were in age group of 80 years and above.[6]

In the present study Hypertension was the most prevalent morbidity NCD in the Rural elderly population 41.45%, followed by diabetes 24.35%, myocardial infraction 0.52%, and Asthma 10.7% similar to study conducted by, Lean A *et al* in Udupi found hypertension (59.1%), arthritis (41.3%), diabetes (10.3%), and Asthma (10.7%) were common non-communicable disease observed. [5] Shraddha, *et al* in Mysore, Karnataka found arthritis (30.2%), hypertension (29.3%), diabetes mellitus (13.9%), and Asthma (2.3%).[7] Karmarkar N *et al* in Tripura arthritis (45%), hypertension (12.3%), diabetes mellitus (5%), and Asthma (28%).[6]

Our study showed statistically significant and association of morbidity of NCD with Smoking and chewing tobacco and Alcohol consumption. In our Study 9.2% of people have habit of smoking, 5.7% people have habit of chewing tobacco and 6.2% drink alcohol were associated with NCD morbidity. Karmarkar N *et al* in Tripura observed that 13.8% of the elderly chewed tobacco, 13.8% of males were smokers and 12.7% of the subjects regularly consumed alcohol.[6] Purty *et al* in their study from a rural area of Pondicherry observed that 61% of the elderly chewed tobacco, 33% of males were smokers and 28% of the subjects regularly consumed alcohol.[8] Goswami A *et al* in Haryana reported that the total prevalence of smoking was 57%. In males it was 72% and 41% in females respectively. 16% of men and 1% of women consumed alcohol. [9]

Age, Type of Housing, Water Supply, and Socio-economic Class also showed statistically significant and association of morbidity in causing NCD.Our study consist of Pucca 17.1%, Semi pucca 78.8%, Kutcha 4.1%. Sharma *et al* in Chandigarh showed Pucca 0.9%, Semi pucca 5.7%, Kutcha 93.4%.

Socio-economic class (Modified Kuppuswamy's 2020) in our study compared to Karmarkar N *et al* in Tripura.[6]

	Classes	Present study	Karmarkar N
I.	Upper class	0%	1.5%
II.	Upper middle	0.82%	11.2%
III.	Lower middle	2.48%	22.3%

IV.	Upper lower	21.49%	30.4%
V.	Lower	75.21%	34.6%

Diet which plays vital role in Lifestyle; our study had morbidity like Undernutrition 18.8% and Obesity 34.9%, M K Sharma in Chandigarh found prevalence of 33.5%.[11]

Conclusion:

Prevalence of NCD like Hypertension, Diabetes, MI, etc can be prevented by reduction of the high-risk factors such as Lifestyle changes, Diet Modification, and Changing Habits of alcohol and tobacco. As the population is growing in geriatric age group & morbidities will also increase respectively. Hence there is an urgent need for geriatric health care services in developing countries like India to provide health care services and health care providers to manage the commonly existing health problems in the community with emphasis on NCD. Creation of separate, specialized, and comprehensive health care to senior citizens at various levels of State health care delivery system including outreach services.

Acknowledgment: **NIL**
Conflict of Interest: **NIL**
Source of Funding: **NIL**

References:

1. Global Health and Aging [Internet]. 2020 [cited 13 October 2020]. Available from: https://www.who.int/ageing/publications/global_health.pdf
2. World Health Organization. Definition of an older or elderly person. Health statistics and health information systems [Online]. 2009 [cited 2009 Oct 12]; Available from: URL:http://www.who.int/healthinfo/survev/aqeinqdefnolder/en/index.html
3. Bhalwar R, Vaidya R, Tilak R, Gupta R, Kunte R. Text book of public health and community medicine. 1st ed. New Delhi: Department of Community Medicine, AFMC, Pune in collaboration with WHO; 2009.pg 887-890.
4. Census of India website: office of the registrar general & Census Commissioner, India [Internet]. Censusindia.gov.in.2018 [cited 11 September 2018].Available from: http://www.censusindia.gov.in.
5. Lena A, Ashok K, Padma M, Kamath V, Kamath A. Health and social problems of the elderly: A cross-sectional study in Udupi Taluk, Karnataka. Ind J co Medico: official publication of Indian Association of Preventive & Social Medicine. 2009;34(2):131-4.
6. 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(11):5030- 5.
7. Shraddha K, Prashantha B, Prakash B. Study on morbidity pattern among elderly in Urban population of Mysore, Karnataka, India. Int J Med Biomed Res 2013;1:215-23
8. Purty AJ, Bazroy J, Kar M, Vasudevan K, Veliath A, Panda P. Morbidity pattern among the elderly population in the rural area of Tamil Nadu. India. Turk J Med Sci. 2006;36:45-50.
9. Goswami A, Reddaiah VP, Kapoor SK, Singh B Tobbaco and Alcohol use in Rural elderly population. Indian Journal of Psychiatry. 2005;47:192-97.
10. Pilania M, Bairwa M, Khurana H, Kumar N. Prevalence and predictors of depression in community-dwelling elderly in rural Haryana, India. Indian J Community Med [Internet]. 2017;42(1):13–8. Available from: http://dx.doi.org/10.4103/0970-0218.199792.

11. M.K. Sharma, H.M. Swami, Rajbir Gulati, Vikas Bhatia, Dinesh Kumar Life style and morbidity profile of geriatric population in urban area of Chandigarh. Journal of The Indian Academy of Geriatrics, Dec, 2005.Vol. 1(3),122-125.