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Prevalence of Non-Communicable Diseases among Geriatric population in Block Hazratbal, District Srinagar

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ABSTRACT

Elderly population aged 60 years and above in the world will reach 1.2 billion by the year 2025, the majority of whom will be in developing countries.Major health problems which are faced in this age group are hypertension, coronary artery disease, strokes, diabetes mellitus, obesity, cancers, cataracts, osteoarthritis, osteoporosis, chronic obstructive airway disease, benign hyperplasia of prostate, Alzheimer's disease, Parkinson's disease, senile Dementia and depression. Globally, the burden of non-communicable diseases, which also bear the greatest morbidity and mortality, is rising in developing countries. Demographic and epidemiological transitions taking place in the developing countries of Asia is shifting the disease burden from communicable towards non-communicable disease. India's poor are at heightened risk of acquiring NCDs owing to high rate of smoking, tobacco use and high salt intake. So this paper analyses the links between sociodemographic correlates and non-communicable diseases in block Hazratbal, district Srinagar. Objectives:1. To estimate the prevalence of NCDs among study population.2. To find out the socio-demographic correlates of NCDs in the study population. Study design: A Community Based, Cross sectional study. Study population: Elderly (≥60 years) persons residing in selected geographical area. Results:In this study, majority of the elderly study population were suffering from Hypertension/Ischemic/Other heart diseases (52.2%) followed by COPD (11.4%), Arthritis/other Musculoskeletal problems (10.6%), Diabetes mellitus (10.4%). Gastritis (9.8%), Hypothyroidism (9.6%), Benign prostrate hypertrophy (9.4%). The main reason for high prevalence of Hypertension/Ischemic heart disease could be that we take lots of salty products in our daily diet. Other causes could be living in a conflict area or genetic susceptibility. Most of elderly study subjects 446(89.9%) were on drugs for their chronic diseases.

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Introduction

Elderly population aged 60 years and above in the world will reach 1.2 billion by the year 2025, the majority of whom will be in developing countries(1). Major health problems which are faced in this age group are Non-communicable diseases like hypertension, coronary artery disease, strokes, diabetes mellitus, obesity, cancers, cataracts, osteoarthritis, osteoporosis, chronic obstructive airway disease, benign hyperplasia of prostate, Alzheimer's disease, Parkinson's disease, Senile Dementia and depression (2). W.H.O estimates that by 2020, heart disease and stroke will become the leading causes of death and disability worldwide, with the number of fatalities projected to increase to more than 24 million by 2030 (3). Demographicand epidemiological transitions taking place in the developing countries of Asia is shifting the disease burden from communicable towards non-communicable disease (6). In India alone, rapid changes in the country's Socio-cultural and lifestyles have caused NCD's to become responsible for two-thirds of the total morbidity burden and about 53% of total deaths (4). The simultaneous occurrence of more than one health condition in the same individual especially in the older adults is increasingly becoming the norm.

Rationale of the study

- India's Geriatric population are at heightened risk of acquiring NCDs owing to high rate of smoking, tobacco use, physical inactivity, unhealthy diet, urbanization, stress and high salt intake especially in this part of the world.(5)So this study throws some light to know about the Magnitude of NCD's among geriatric population in Block Hazratbal which is the field practice area of Government Medical College, Srinagar.

OBJECTIVES:

- To estimate the prevalence of NCD's among geriatric population in Block Hazratbal, District Srinagar.

- To find out the Socio-demographic correlates of NCD's in the study population.

Materials & Methodology:

- **Study design:** A Cross-sectional, Community Based study.

- **Study population:** (≥60 years of both genders)

- **Inclusion Criteria:**

  1. Permanent Residents of Kashmir Valley.

  2. Age 60 years and above.

- **Exclusion Criteria:**

  Geriatric population who refuse to give informed consent for the study.

- **Study area:** Block Hazratbal of District Srinagar

- **Study duration**: From 1st April 2015 – 30th September 2016

- **Sample size calculation:**

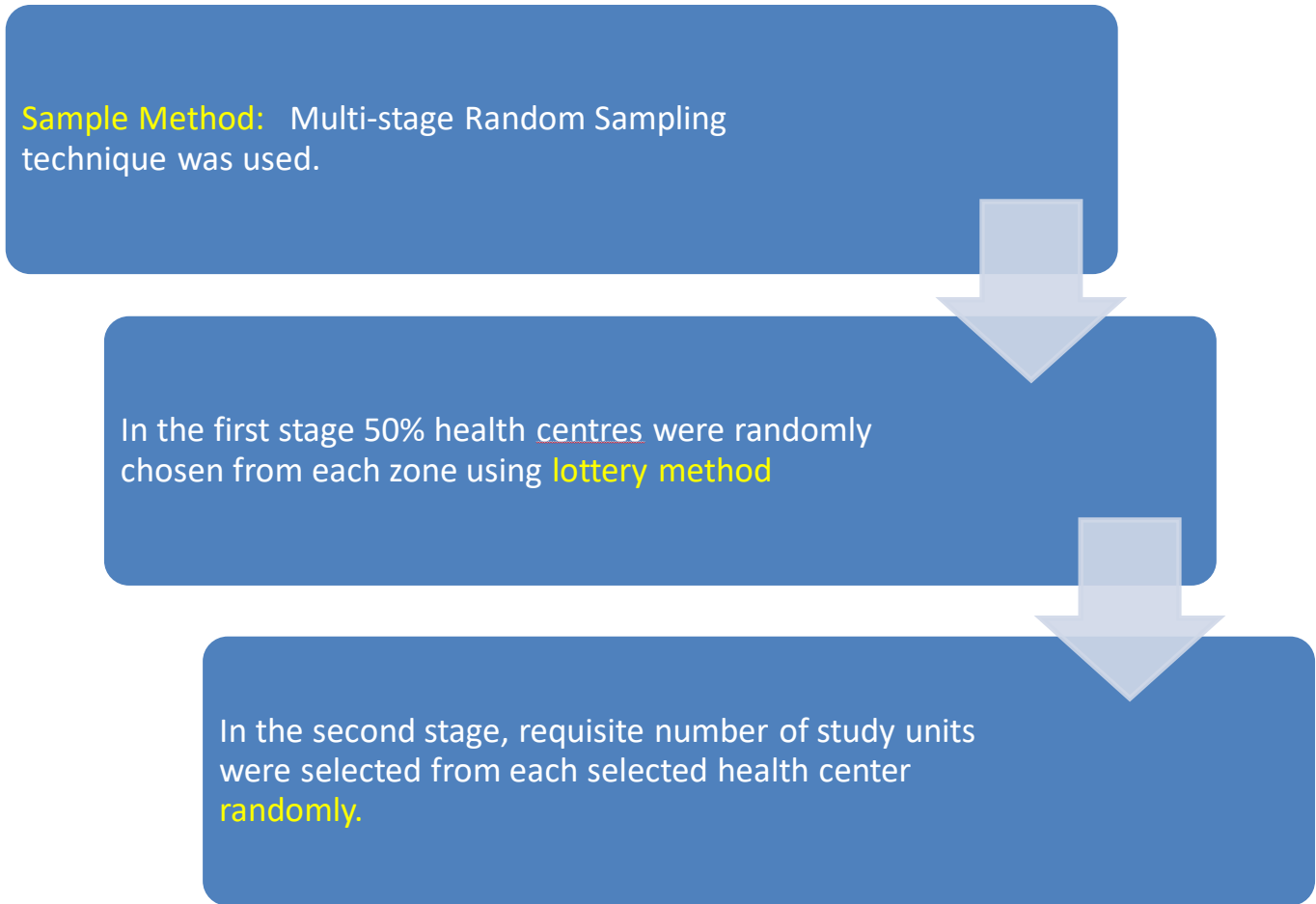N= (1.96) ^{2} pq / L^2 496 elderly were selected.

- **Sample Plan:** As shown in flow-chart below

- **Ethical Consideration:**

All the selected subjects were informed about the objectives of the study. A proper written informed consent was taken from the selected subjects who agreed to participate in the study.

- **Procedure:**

The identified 496 elderly subjects were interviewed in their local language and they were examined by using a pre-tested, semi-structured, study questionnaire. The questionnaire was divided into two parts. The first part comprised of the socio-demographic information. In second part the diagnosis was obtained from written Medical records of Registered Medical Practioners (Both Public & Private Sector) available with the study subjects. Cases were grouped broadly as: 'Vision', 'Audition','Diabetic', 'Cardiovascular', 'Respiratory','Musculoskeletal', 'Surgical' 'Gynecological','Dermatological' and 'Psychiatric'

Sample Method: Multi-stage Random Sampling technique was used.

In the first stage 50% health centres were randomly chosen from each zone using lottery method

In the second stage, requisite number of study units were selected from each selected health center randomly.

OBSEVATIONS & RESULTS:

Table 1: Distribution of study population as per their gender.

Gender	No. of elderly (n)	Percentage (%)
Female	269	54.2
Male	227	45.8
Total	496	100.0

Table 2: Distribution of study population as per their marital status.

Marital Status	No. of elderly (n)	Percentage (%)
Currently Married	401	80.8
Widow/Widower	92	18.5
Separated	1	0.2
Divorced	1	0.2
Never Married	1	0.2
Total	496	100.0

Table 3: Distribution of study population as per their educational qualification.

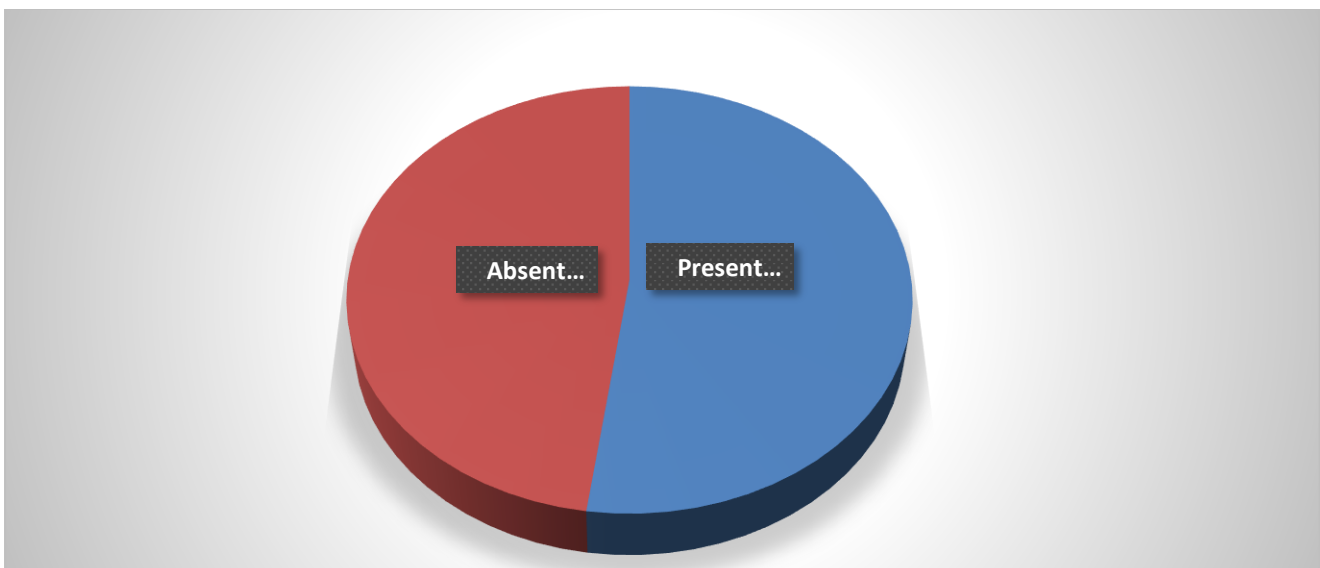| Education	No. of elderly (n)	Percentage (%)
Illiterate	358	72.2
Primary	47	9.5
Middle	41	8.3
Secondary	24	4.8
Higher Secondary	7	1.4
Graduate/Post graduate	18	3.6
Professional	1	0.2
Total	496	100.0

Table 4: Distribution of study subjects according to socio-economic status.

Socio-Economic status (Kuppuswami scale 2016)	No. of elderly (n)	Percentage (%)
Cat- I (Upper)	5	1.0
Cat-II (Upper Middle)	179	36.1
Cat-III (Lower Middle)	107	21.6
Cat-IV (Upper Lower)	205	41.3
Cat-V (Lower)	0	0.0
Total	496	100.0

Table 5: Distribution of study subjects according to direct effect of conflict on their lives in the region.

Life in conflict area	No. of elderly (n)	Percentage (%)
Not effected	438	88.3
Effected	58	11.7
Total	496	100.0

Prevalence of Non-communicable Diseases was found 52.2%.

Table 6: Distribution of Non Communicable Diseases in Study Subjects.

Morbidity	No. of elderly(n=496)	Percentage (%)
Hypertension / IHD	259	52.2
DEPRESSION	156	31.5
COPD	57	11.4
Musculoskeletal problems	53	10.6
Diabetes mellitus	52	10.4
Gastritis	49	9.8
Hypothyroidism	48	9.6
Benign prostrate hypertrophy[*]	47	9.4
Osteoporosis	17	3.4
Cataracts	11	2.2
Sensory Neural Hearing Loss	10	2.0
Cancers	06	1.2

*Males only.

Table 7: Distribution of NCD's according to Gender:

NCD's	Gender		Total
	Male	Female	
Present	103(39.5%)	156(60.5%)	259 (100%)
Absent	124(52.4%)	113(47.6%)	237 (100%)
Total	227(45.8%)	269(54.2%)	496 (100%)

Table 8: Distribution of NCD's according to different age groups.

AGE (In Years)	NCD's		Total n (%)
	PRESENT n (%)	PRESENT n (%)	
60 - 69	108(48.7%)	114(51.35%)	222(100.0%)
70 - 79	126(53.6%)	109(46.4%)	235(100.0%)
80 & above*	25(64.1%)	14(35.9%)	39(100.0%)
Total	259(52.2%)	237(47.8%)	496(100%)

Table 9: Distribution of NCD's according to educational status in the study group.

Educational status	NCD's		Total n (%)
	PRESENT n (%)	ABSENT n (%)	
Illiterate	229 (64%)	129 (36%)	358(100.0%)
Literate*	30 (21.7%)	108(78.3%)	138(100.0%)
Total	259(52.2%)	237 (47.8%)	496(100.0%)

Table 10: Distribution of NCD's according to marital status in the study group.

Marital Status	NCD's		Total n (%)
	PRESENT n (%)	ABSENT n (%)	
Currently Married	170(47.2%)	190(52.77%)	360(100.0%)
Widow/widower & Single	89(65.4%)	47(34.55%)	136(100.0%)
Total	259(52.2%)	237(47.8%)	496(100.0%)

Table 11: Distribution of NCD's according to Socio economic   category in study subjects.

Socio-economic Category	NCD's		Total n (%)
	PRESENT n (%)	ABSENT n (%)	
Upper/Upper Middle*	40(30.3%)	92(69.69%)	132(100.0%)
Lower Middle	66(51.16%)	63(48.8%)	129(100.0%)
Upper Lower	153(65.10%)	82 (34.89%)	235(100.0%)
Total	259(52.2%)	237(47.8%)	496(100.0%)

X^2=60.035. P<0.001**

Table12: Distribution of NCD's according to Economic dependence.

Economic dependency	NCD's		Total n (%)
	PRESENT n (%)	ABSENT n (%)	
INDEPENDENT	30(23.62%)	97 (76.37%)	127(100.0%)
PARTIALLY DEPENDENT	84(70.58%)	35 (29.42%)	119(100.0%)
TOTALLY DEPENDENT	145(58.00%)	105 (42.00%)	250 (100.0%)
Total	259 (52.2%)	237 (47.8%)	496 (100.0%)

X^2=52.199.   P<0.001

Table 13: Relationship of NCD's with dependency for the activities of daily living .

Dependency for the Activities of Daily Living	NCD's		Total n (%)
	PRESENT n (%)	ABSENT n (%)	
INDEPENDENT	180(45.56%)	215(54.4%)	395(100.0%)
PARTIALLY DEPENDENT/ TOTALLY DEPENDENT*	79 (78.2%)	22(21.7%)	101(100.0%)
Total	259(52.2%)	237(47.8%)	496(100.0%)

X^2=21.997. P<0.001

Table 14: Relationship of NCD's with Depression in study subjects.

Depression	NCD's		Total N (%)
	PRESENT n (%)	ABSENT n (%)	
Present	156(61.4%)	98(38.6%)	254 (100.0%)
Absent	103(42.6.%)	139(57.4%)	242(100.0%)
Total	259(52.2 %)	237(47.8%)	496(100.0%)

X^2=9.962. P<0.002

Table 15: Relationship of NCD's with Tobacco consumption status in the elderly study subjects.

Tobacco Consumption	NCD's		Total n (%)
	PRESENT n (%)	ABSENT n (%)	
Current Tobacco Consumer	183(69.58%)	80(30.41%)	263(100.0%)
Ex / Non Tobacco Consumer	76(32.61%)	157(67.38%)	233(100.0%)
Total	259(52.2%)	237(47.8%)	496(100.0%)

X^2=2.753Chi-square test**P<0.005**

Table 16: Relationship of NCD's with drug intake of study subjects for their chronic diseases

DRUG INTAKE	NCD's		Total n (%)
	Present n (%)	Absent n (%)	
Present	210(55.7%)	167(44.3%)	377(100%)
Absent	49 (41.1%)	70(58.8%)	119(100%)
Total	259(52.2%)	237(47.8%)	496 (100%)

X^2= 11.869. P <0.001

The prevalence of NCD was highest (55.7%) among the study subjects who were on drugs for their chronic diseases. The difference was found statistically significant (P<0.001)

Discussion:

More than 52.2% of the older adults in our study had at least one NCD which is a huge challenge for the healthcare system in India with limited capacity for managing NCDs.In our study it was seen that Hypertension/IHD had a prevalence of 52%, depression 31.5%, COPD 11.4%, Musculoskeletal problems 10.6%, followed by Diabetes mellitus 10.4%.A study conducted by Joy Kumar Chakma & Sanjay Gupta on "Lifestyle and Non-Communicable Diseases: A double edged sword for future India" showed that In India, 53% of the deaths in 2008 were due to NCDs (WHO). The cardiovascular diseases (CVDs) alone account for 24 percent of all deaths. The anticipated cumulative loss of national income due to NCDs mortality for India for 2006-2015 will be USD237 billion. By 2030, this productivity loss is expected to double (4).

In our study NCDs were more common in females 156(60.5%) as compared to males where it has a prevalence of 103(39.5%).The difference was also found statistically significant. (p<0.005).One of the studies in Chandigarh found out that female elderly were more prone to morbidity (Swami et al., 2002).(7)

In our study NCDs were highest in age group of 80 years and above 25(64.1%) and lowest in the age group of 60-69years where it was 108 (48.7%).The difference was also found statistically significant. (p<0.005)The results of similar studies are also consistent with our study where the incidence of Multimorbidityis positively associated with age, with anincrease in age the proportion of no morbidity to one morbidity and multimorbidity increased many folds (Chirinda, W., et al.2015, Arokiasamy, P., et al., 2015).(1,11)

In our study NCDs were more common in study subjects who were illiterate 221(64%) as compared to literates were it was found only 30(21.7%).The difference was also found statistically significant. (p<0.005)

Our study found that the geriatric population who were widow/widower and single had NCDs 89(65.4%) more common than who were currently married 170(47.2%).The difference was also found statistically significant. (p<0.005)

Our study found that the geriatric population who were belonging to upper lower class had NCDs 153(65.1%) more common than who were belonging to upper/upper middle class 40 (30.3%).The difference was also found statistically significant. X^2=60.035(p<0.005)In another study the association between socio-economic status and prevalence of specific chronic diseases is well established (Marmot, 2005)A study on multimorbidity in Australia found that 85% of 70+ year elderly have multi-morbidity and the prevalence is higher among elderly, with obese, female, in low socio-economic status, living alone and less educate, leading to negative impact on quality of life (Walker, 2007).(9,10)

In our study NCDs was highest in the geriatric population who were partially dependent economically on others 84(70.5%) and lowest who were economically independent 30 (23.6%).The difference was also found statistically significant. x^2=52.19(p<0.001)In another study whereAge, state of economic independence and lifestyle indicators are more important predictors of multimorbidity among study population was studied (Banjare& Pradhan, 2014).(8)

In our study NCDs was highest in the geriatric population who were partially/ totally dependent for the activities of daily living 79(78.2%) and lowest who were independent for the activities of daily living 180 (45.5%).The difference was also found statistically significant. x^2=21.997(p<0.001)

In our study NCDs were more common in study subjects who had depression 156(61.4%) as compared to study subjects where depression was found absent 103(42.6%).The difference

was also found statistically significant. $X^2=9.962(p<0.002)$.

In our study NCDs was highest in the geriatric population who were tobacco consumers 183(69.5%) and lowest who were Ex-Nonsmokers 76 (32.6%).The difference was also found statistically significant. $x^2=2.753(p<0.005)$

In our study NCDs was more common in the geriatric population who were on drugs for their chronic morbidities 210(55.7%) as compared who were not on drugs for their chronic ailments 49 (41.1%).The difference was also found statistically significant. $x^2=11.869(p<0.001)$

Conclusion:

- Overall prevalence of NCD's was fairly high among the elderly subjects in this part of the world.

- NCD's was more common in females as compared to males.

- The major burden of disease was due to Hypertension/CVD, depression,COPD, Diabetes Mellitus and degenerative disorders.

- Advanced age, illiteracy, marital status, socio-economic class, family pattern, economic dependence, dependence for activities of daily living, and Tobacco consumption, drug intake for chronic ailments are the strong predictors on the prevalence of NCD's in the elderly.

Recommendations

- Screening for NCD's in elderly patients should be done regularly in primary care settings.

- A comprehensive strategy for the prevention and control of NCDs must integrate public health actions to minimize risk factor exposure at the level of the population and reduce risk at the level of individuals at high risk

- There is need of strengthening the existing "package" of services for elderly under various initiatives and programs by means of IEC (Information Education & Communication) and BCC (Behavioral Change Communication) especially to bring a social change targeting towards the elderly.

- Health services need to be strengthened accordingly with increased emphasis on key service utilization determinants like service availability and accessibility.

- The findings of my study could guide community-based program managers to devise and implement effective and timely NCD based health interventions for older adults, in order to decrease geriatric NCD's and develop a comprehensive strategy for its early diagnosis and management.

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