

# Relationship of Morbidity with Socio Demographic Variables of Elderly Population in a Rural Block of Kashmir Valley

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## ABSTRACT

**Introduction:** Population ageing is one of the humanities greatest triumphs. It is also one of our greatest challenges. Increase in life expectancy has led to increased geriatric population and as such increased number of health problems. Need of the hour is to plan health care services so that they can cope with the increased demand. For proper planning of health care services there is an urgent need of base line data of the health problems faced by the elderly population. Since, no such data was available from this area, this study was undertaken.

**Material and Methods:** It was a Community based, cross sectional study conducted in a rural Block of Kashmir Valley, for a period of one year. 500 geriatric subjects ( $\geq 60$  years) were selected by random sampling technique.

**Results:** Maximum study population comprised of, young-old (60-69 years) 70.2%, followed by old-old group (70-79 years) 26.2% and lastly very old group (80 and above) 3.6% Literacy rate among females was zero. Females had higher number of morbidities compared to males. Majority of study subjects were suffering from ocular morbidities especially cataract (67%), followed by Hypertension (55.2%), impaired hearing status (21.6%), Acid Peptic Disease (18.2%), Osteoarthritis (13.4%), Chronic Obstructive Pulmonary Disease (11%). The maximum correlation of said morbidities was observed with age, followed by occupation, financial status, gender and the literacy in that order.

**Conclusion:** The data will enhance understanding the patterns of health problems among elderly population and their association with socio-demographic variables and thus will contribute to the application of appropriate intervention strategies.

**Keywords:** Geriatric, Relationship, Sociodemographic, Morbidity, cross sectional.

planning of its geriatric health care.

## MATERIAL AND METHODS

This community based cross-sectional study was conducted for a period of 1 year (Jan-Dec 2009) on geriatric population of a rural block in Kashmir Valley. Prevalence of morbidities among elderly people was as high as 98% in some studies and as low as 30% in other studies. Taking the average prevalence of morbidities among elderly as 50% sample size of 400 was calculated using the formula.<sup>5</sup>  $n = \frac{Z^2 P (1-P)}{d^2}$ , Where: n= sample size, Z= z statistic for a level of confidence (for 95% CI, Z value is 1.96), P= expected prevalence or proportion (in proportion of one; if 20%, P=0.2), and d= precision (in proportion of one; if 5%, d=0.05). Random Sampling Technique was used to select the study sample of 500 subjects. In Hajin block, which is a field practice area of SKIMS, 50% sub-centres were selected randomly. 25% of the villages falling under the selected sub-centres were randomly taken for the study. Households within these villages comprised our final sampling unit. As per probability proportionate to size sampling (PPS), house to house study was conducted till the requisite sample size was obtained.

Before interviewing the study subjects, they were explained the purpose of the study. Information on socio-demographic characteristics was recorded. Local events calendar was used for assessment of age. Modified Prasad Classification was used for assessing SES. It was followed by history taking, general physical examination and lastly examination of Health Records/ investigations/medicine to make a diagnosis which was recorded on a proforma. If the subject was suspected of any undiagnosed morbidity on history/clinical examination, he/she was referred to nearest CHC for proper evaluation and diagnosis which was then entered in the proforma.

## STATISTICAL ANALYSIS

Data thus obtained was summarized as percentages. To assess the significant difference in categorical variables Chi square test was used. The association of morbidity with socio-demographic variables was calculated using multiple regression analysis using SPSS: 11.5.

## INTRODUCTION

India has been labeled as an ageing nation with 7.7 percent of its population being more than 60 years old. In absolute terms the elderly population in India accounted for 77million in 2001.<sup>1</sup> The proportion is likely to reach 12 percent in 2031 and 17 percent in 2051. So, India is marching towards a future where the elderly population will be on rise.<sup>2</sup> In Jammu and Kashmir, the proportion of the elderly has increased from 5.78 percent in 1991 to 6.71 percent in 2001<sup>1</sup> Going by the numbers for the elderly in India, problems on all fronts like medical, social and economic are bound to arise if steps are not taken well in time. The common diseases among the ambulatory elderly are cataract, osteoarthritis, hypertension, chronic obstructive pulmonary disease, ischemic heart disease, diabetes, benign prostatic hypertrophy, dyspepsia, irritable bowel syndrome and depression.<sup>3</sup> The morbidity profile of an elderly is greatly influenced by the socio-demographic variables.<sup>4</sup> This study was an attempt to get some preliminary details on geriatric health problems in Kashmir valley so that it may be first step towards

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**RESULTS**

The study population comprised of more females (53.4%) as compared to male (46.6 %). Majority of the study population was young-old (60-69 years) 70.2%, followed by old-old (70-79 years) 26.2 % and only 3.6 % belonged to very-old age group (80 and above). The occupation status of the studied population showed that 225 (45%) were farm/cultivators, 140 (28%) were household workers/homemakers, 82 (16.4 %) had no occupation, 35 (7 %) were labourers, 14 (2.8%) were retired employees and 4 (0.8%) were engaged in business/shop. The differences across the sexes in all the groups was statistically significant (p=0.000).Majority of elderly people 479 (95.8%) were illiterate and only 21 (4.2 %) were literate. Among males only 21 (9 %) were literates whereas females were 100 % illiterate and differences were statistically significant (p = 0.000).Majority of the elderly 222 (44.4 %) belonged to socio economic class I, 172 (34.4%) belonged to class II, 54 ( 10.8 %) belonged to class III, 32 (6.4 %) belonged to class IV and rest i.e 20 (4 %) belonged to class V (Table 1).

**Morbidity Profile:** The prevalence of six leading diseases among old age in descending order was ocular 335 (67%) followed by hypertension 276 (55.2 %), auditory 108 (21.6 %), Acid Peptic Disease 91 (18.2%), Osteoarthritis 67 (13.4 %) and Chronic obstructive pulmonary disease 55 ( 11% ) (Table 2). To assess relationship of morbidity with socio-demographic variables Multinomial logistic Regression Analysis was done with Age, Gender, Occupation, Literacy status and SES as independent variables on one side and dependent variable of six main morbidities viz ocular, hypertension, hearing impairment, APD (Acid peptic disease), Osteoarthritis, COPD on other side. The socio-demographic variable which shows maximum correlation with the said morbidities was age (R<sup>2</sup>=0.229) followed by occupation (R<sup>2</sup>=0.140), SES (R<sup>2</sup>=0.112), gender (p=0.076) and lastly literacy status (R<sup>2</sup>=0.037) in that order. Age has significant association with ocular (p=0.000), hearing (p=0.000), hypertension (p=0.028) in that order in both sexes. Gender has significant association with APD (P=0.000), Osteoarthritis (0.002) in that order in both sexes. Occupation

has significant association with Osteoarthritis only (p=0.004) in both sexes. Literacy status has significant association with ocular morbidity (p=0.005) in both sexes. SES has significant association with APD (P=0.003) only in both sexes (Table-3).

**DISCUSSION**

In view of implicit assumption that ill health or deterioration of health is inevitability associated with advanced age it makes a strong case for assessing or evaluating the needs, type and nature of health services to be made available to this segment of population. Present study discusses some of the demographic characteristics, morbidity status, and the association between the two and based on the findings, suggested measures to prevent disease and improve the health status of our geriatric population.

**Demographic characteristics:** The present study showed that almost 70% of studied geriatric population was young old, 26.2% as old-old and only 3.6% as very old. This is understood, because our average life expectancy is still very low 60-61 years.<sup>1</sup> Almost all studied subjects were illiterate and hardly 10 % men were literate that is because the literacy rate was very low when they were in their prime youth (1930's and 40's in India literacy rate was 18.33 as per census 1951 and even much low in J and K) and the literacy status started improving from late 1980.<sup>7</sup> Cent percent illiteracy among women is understandable, because rural women those days were not allowed to go to school. It was heartening to observe that overall 1/3<sup>rd</sup> of the geriatric population still kept themselves busy in various type of work at this age and remained engaged either in cultivation, business or doing one or the other work, whereas only 16.4 % had no work. In fact more than half of the males were engaged in cultivation and another 28 % were doing one or the other business, making more than half the males financially independent. Expectedly almost all females were house wives and remained busy with domestic affairs but their work is hardly monetized.<sup>8</sup> While extrapolating the work participation rates among the elderly from National Sample Survey 60<sup>th</sup> round<sup>8</sup>, 35.7 per cent geriatric population as working which is similar to our study i.e. 35.8%.

		Female		Male		Total		P value
		n	%	n	%	n	%	
Age	Young-old(60-69years)	192	72	159	68	351	70	0.342
	Old-old(70-79years)	67	25	64	28	131	26	
	Very-old(80years and above)	8	3.0	10	4	18	4	
	Total	267	53	233	47	500	100	
Occupation	Retired employee	0	0.0	14	6.0	14	2.8	0.000
	Farm/Cultivator	11	4.1	129	55.4	140	28.0	
	Business/shop	1	0.4	3	1.3	4	0.8	
	Laborer	13	4.9	22	9.4	35	7.0	
	Household/homemaker	223	83.5	2	0.9	225	45.0	
	None	19	7.1	63	27.0	82	16.4	
Education/Literacy status	Illiterate	267	100.0	212	91.0	479	95.8	0.000
	Literate	0	0.0	21	9.0	21	4.2	
Social class	V= < 547	16	6.0	4	1.7	20	4.0	0.000
	IV=1096 to 548	20	7.5	12	5.2	32	6.4	
	III=1826 to 1096	34	12.7	20	8.6	54	10.8	
	II= 3652 to 1826	103	38.6	69	29.6	172	34.4	
	I= 3653 and above	94	35.2	128	54.9	222	44.4	

**Table-1:** Socio-demographic Characteristics of the Study sample

	Overall		Young-old				Old-old				Very-old				p value		
	n	%	Female		Male		Female		Male		Female		Male			Total	
			n	%	n	%	n	%	n	%	n	%	n	%			
Ocular	335	67.0	120	62.5	75	47.2	195	55.6	60	89.6	62	96.9	122	93.1	18	100.0	0.000 (Sig)
Hypertension	276	55.2	101	52.6	73	45.9	174	49.6	54	80.6	40	62.5	94	71.8	8	44.4	0.000 (Sig)
Auditory	108	21.6	28	14.6	21	13.2	49	14.0	32	47.8	21	32.8	53	40.5	6	33.3	0.000 (Sig)
APD	91	18.2	47	24.5	14	8.8	61	17.4	12	17.9	8	12.5	20	15.3	4	20.0	0.000 (Sig)
Osteoarthritis	67	13.4	37	19.3	12	7.5	49	14.0	12	17.9	4	6.3	16	12.2	2	11.1	0.000 (Sig)
Chronic Obstructive pulmonary Disease	55	11.0	13	6.8	26	16.4	39	11.1	8	11.9	6	9.4	14	10.7	2	11.1	0.018 (NS)

Table-2: Profile of main diseases among elderly population by age group and gender

Multinomial Logistic Regression Analysis										
	Age		Gender		Occupation		Literacy Status		SES	
	$\chi^2$	Sig	$\chi^2$	Sig	$\chi^2$	Sig	$\chi^2$	Sig	$\chi^2$	Sig
Ocular	67.3	0.000	2.3	0.133	12.5	0.028	7.9	0.005	5.2	0.270
Hypertension	7.1	0.028	3.4	0.066	7.8	0.166	0.2	0.665	12.5	0.014
Auditory	15.4	0.000	0.0	0.911	8.1	0.149	0.5	0.464	5.9	0.210
APD	15.0	0.001	17.4	0.000	12.9	0.024	1.6	0.207	16.3	0.003
Osteoarthritis	0.8	0.656	10.1	0.002	17.2	0.004	5.8	0.016	9.5	0.049
COPD	0.3	0.855	4.6	0.033	10.1	0.073	0.1	0.811	6.4	0.168
Correlation	R <sup>2</sup> = 0.229		R <sup>2</sup> = 0.076		R <sup>2</sup> = 0.140		R <sup>2</sup> = 0.037		R <sup>2</sup> = 0.112	

Table-3: Relationship of morbidity with Socio-demographic variables

**Morbidity profile:** Profile of six main diseases among elderly population by age group and gender in descending order was ocular diseases (67%), followed by hypertension (55.2 %), hearing impairment (21.6 %), Acid Peptic Disease (18.2%), Osteoarthritis (13.4%) and Chronic obstructive pulmonary disease/ bronchial asthma (11.0%).

Lena A et al<sup>9</sup>, in her study showed that the most common health problems were hypertension (53%),osteoarthritis (19%), diabetes (11%), bronchial asthma (13%) and others (17%). Joshi K et al<sup>10</sup> in their study conducted in Chandigarh showed most prevalent morbidity among elderly people was anemia (66.5%) followed by dental problems (63%), hypertension (49%), chronic obstructive airway disease (COAD) (42%), cataract (38%) . As per the study conducted by Eun -kyung Woo et al<sup>11</sup> in Korean population, morbidities found in descending order were hypertension (37.5%) arthritis (15.6%), diabetes mellitus (14.9%), Osteoporosis (14.1%) and GIT problems (13.1%). Elderly population is afflicted with a wide range of morbidities involving almost every system. Variations in disease pattern in studies conducted at other places can be observed which is as per their genetic and lifestyle pattern in addition to socio-cultural practices and social security status

**Relationship of morbidity with socio-demographic variables:** Multinomial logistic Regression Analysis was applied to assess relationship of morbidity with socio-demographic variables. The socio-demographic variable which showed maximum correlation with the said morbidities was age (R<sup>2</sup>=0.229) followed by occupation (R<sup>2</sup>=0.140), SES (R<sup>2</sup>=0.112), gender (p=0.076) and lastly literacy status (R<sup>2</sup>=0.037) in that order. The number of morbidities in a person increase with age. Data available from India NSSO 1991 has shown that chronic diseases are prevalent in

50 per cent of the elderly with the number of diseases increasing with increase in age<sup>12</sup> Age has significant association with ocular (p=0.000), hearing (p=0.000), hypertension (p=0.028) in that order in both sexes. All these morbidities are degenerative diseases which develop with increase in age. Gender has significant association with APD (P=0.000), Osteoarthritis (0.002) in that order in both sexes. Both these morbidities are seen more in females as compared to males. APD (Acid Peptic Disease) can be because of stress, depression and financial dependence. Osteoarthritis is again a degenerative disease which increases with age more so in females because of menopausal squeal. Various studies conducted in India have shown that elderly females have greater morbidities and disabilities as compared to elderly males. (Sengupta M et al)<sup>13</sup>

Occupation has significant association with arthritis only (p=0.004) in both sexes as in this study 28% were cultivators and around 45% were involved in household work. Literacy status has significant association with ocular morbidity (p=0.005) in both sexes because in this study maximum population was illiterate and did not seek treatment for preventable causes of blindness especially cataract. .As per the study from China differences in the health status of elderly people was attributable to differentials in educational attainment. (Beydoun M. A et al)<sup>14</sup> SES has significant association with APD (P=0.003) only in both sexes. When people are poor and are financially dependent, they cannot seek medical attention and as such have to live with multiple morbidities. Studies, from both the developing countries (Kabir Z.N et al)<sup>15</sup> and developed economies (Liang J et al)<sup>16</sup> have noted an inverse association between socio-economic status and mortality, morbidity and disability among the elderly.

Impact of various socio-demographic factors on different morbidities is understandable

because various morbidities are influenced and affected differently by physiological, psychological reasons or capacity to continue prolonged and expensive treatment or awareness about a diseases etc. In fact availability of specific geriatric services also influences the disease pattern.

## CONCLUSION

It has been rightly said that Geriatric problem is a socio-medical problem and has to be dealt in totality. Ocular morbidity especially cataract was seen in majority of study subjects, followed by Hypertension, impairment of hearing, Acid Peptic Disease, Osteoarthritis and lastly Chronic Obstructive Pulmonary Disease. The maximum correlation of morbidities was observed with age, followed by occupation, SES, gender and lastly literacy in that order. So as to propagate the concept of healthy aging we not only need to have proper Geriatric Health Services but also need to modify certain parameters which have direct bearing on their health. A complete social security for older people is need of the hour so that the health problems are addressed without any delay, thus propagating the concept of "Healthy Ageing"

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