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A Study of Morbidity Pattern in Elderly Population

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Abstract

Ageing is a biological process, experienced by mankind. Ageing is a dynamic process, determined by the relative size of the younger and older. However, concern for ageing of population is a relatively new phenomenon, which has raised due to significantly large increase in the number and proportion of aged persons in the society. The phenomenon of population ageing is becoming a major concern for the policy makers all over the world during the last two decades. Ageing of population is affected due to downward trends in fertility and mortality i.e. due to low birth rates with long life expectancies. Life expectancy at birth is projected to continue to rise in the coming years all over the world. The aged population has specific health problems that are basically different from those of adults or young persons. Most diseases in the aged are chronic in nature-cardiovascular, arthritis, stroke, cataract, deafness, chronic infections, cancer. Disease process is usually multiple. Availability and utilisation of health services is an important determinant of the health status of population. The needs for health services tend to vary directly with the age of the individuals. The older the one gets, the more health care he needs. Although the aged people face multiple health problems, even then, they do not consider seeking medical aid and as a result, many conditions remain unreported and untreated till they become complicated. This emphasises the need for strengthening of health care system for elderly population. According to Paul Wallace, all individuals should be prepared to face later years in life within their own limitation gloriously.

Keywords: morbidity, elderly population, ageing, physical disabilities, health care.

Introduction

It is difficult to define the onset of old age. Biologically, ageing begins as early as puberty and is a continuous process throughout adult life. Socially, the characteristics of members of society who are perceived as being old vary with the cultural settings and from generation to generation.

Economically, the elderly are sometimes defined in terms of retirement from the work force. Chronologically, age has long been used as an indicator of expected residual life span. Recent changes in mortality rate have changed the predictive significance of chronological age and refined health care has shifted the emphasis from prolonging life expectancy to increasing the expectancy free of disability.

Ageing is generally defined as a process of deterioration in the functional capacity of an individual that results from structural changes, with advancement of age. High fertility and declining mortality are the major factors responsible for population increase in most countries of the world, especially the developing ones. Longevity has increased significantly in the last few decades mainly due to the socio-economic and health care developments. These factors are responsible for higher numerical presence of elderly people leading to higher dependency ratio. Demographers, researchers and responsible citizens have started to think about the aged population and its problems because of the demographic transition in many countries of the third world now taking place in a much shorter period of time. Ageing of the population will be one of the major challenges of the near future.

In USA,UK and other western countries, the attainment of the age of 65 years has been considered for the purpose of classifying aged persons, whereas in India, it is from 60 years (Vijaykumar S et al, 1999).The elderly sub-population referred to as the “young old” (60-74),the “old” (75-84),and the “old-old” (above 85) (Swash Michael, 1995).

Material and methods:

Raipur is the capital city of the state of Chhattisgarh, India. At the time of 2011 census, the population within the Municipal Corporation area of Raipur was 1,010,087. Study was conducted in randomly selected 32 areas distributed in Raipur city including Urban and Slum areas. List of zones and wards including Slum and Urban areas were obtained from Municipal Corporation Raipur. From eight zones of Raipur city by simple random technique, four zones were selected. Out of the four zones, four wards were selected by simple random technique. From each ward, one slum area and one urban area were included in the study using simple random technique. A total of 32 areas were included in this study. Door to door survey was conducted. From each area, 20 elderly were included in study.

Sampling method: - Multi stage simple random sampling technique.

Sample size: 640

Sample size was calculated by using statistical formula, n= Z2 l-a/2 P (l-P)/d

P = Morbidity Problems (50%), d= Absolute Precision (4%), Confidence level= 95%

As there was no baseline study in Raipur, Chhattisgarh, therefore it was not possible to estimate 'P', so a figure of 0.5(50%) was used. This is the 'safest' choice for the population proportion, since the sample size required is largest when P = 0.5(50%) [128].

A total of 600 figures come using statistical formula. For making uniformity, 20 subjects from each of 32 areas were selected that comes 640. Therefore, a total 640 subjects were included in the study.

Objectives of the study:

1) To study morbidity pattern in elderly population of Raipur city.
2) To determine the pattern of morbidity in elderly population of Raipur city.
3) To study the health-care seeking behaviour of elderly population.
4) To make suitable recommendations on the basis of the study.

Observations and discussion

Descriptive cross-sectional observational study was undertaken among the elderly population in Raipur city during the period July 2013 to June 2014.Information was collected from 640 elderly persons.The findings of the present study is an attempt to explore the morbidity pattern and health-care seeking behaviour among elderly population.

The findings of the study are discussed under following headings:

(A) Socio-demographic characteristics.
(B) Physical activity and substance abuse.
(C) Morbidity Profile.

(D) Health-care seeking behaviour.

Table 1: Age and sex wise distribution of elderly population

Age group (years)	Male		Female		Total	
	No	%	No	%	No	%
60-74	200	74.	323	86.59	523	81.71
75-84	67	25.	47	12.60	114	17.81
>85	0	0	3	0.80	3	0.46
Total	267	41	373	58.28	640	100

Chi-square = 18.384 (df =2, p <0.0001).

Table1 shows out of the total studied elderly (640), more than two-thirds (81.71%) belong to young-old age group followed by old (17.81%) and very old age group (0.46%). Females (58.28%) were more than males (41.71%). There was no male in very old age group.

In a similar study done by Agrawal Anupam (1992), observed that out of total 612 elderly studied ranged from 60 to 102 years, the majority (79.41%), however, belonged to the age group 60 to 75 years. The age distribution of the males and females was found to be essentially similar. Males were 52.0% as against 48.0% females.

Another study done by Lena A et al (2006) showed that a major fraction of the population was in the young old age group; while a small fraction (2.8%) was 80 years old or older. Males and females formed an almost equal proportion of the study sample.

Sex ratio in present study was 1415.73 women per 1000 men. At present, sex ratio for general population in India is 943 as per office of the Registrar General and Census Commissioner, India. Sex Ratio in Urban regions of Chhattisgarh was 956 females per 1000 males.

Table 2: Age and sex wise distribution of morbidity in elderly population

Age groups (years)	Male			Female			Total		
	No examined	Morbid	%	No Examined	Morbid	%	No examined	Morbid	%
60-74	200	176	88	323	319	98.76	523	495	94.64
75-84	67	65	97.01	47	47	100	114	112	98.24
>85	0	0	0	3	3	100	3	3	100
Total	267	241	90.26	373	369	98.92	640	610	95.31

Chi-Square = 21.282 (df = 2, p < 0.0001)

Above table shows, out of total study population (640 elderly) prevalence of morbidity was 95.31% (610). Prevalence among females was 98.92%, whereas among males was 90.26%. Morbidity was statistically positively associated with advancement of age. Among females, 98.76% in young old, 100% in both old and very old age group were morbid; whereas in males, 88% young old, and 97.01% of old were morbid. There was no one in very old age group in male elderly population. The study shows that prevalence of morbidity was more in females than males. In all age groups, prevalence of morbidity among females was more in comparison to males. A community based study from rural area of West Bengal observed that almost all the elderly (96.95% males and 98.15%

females) were suffering from one or more diseases at the time of study. The difference was small and statistically not significant (z=0.54, P>0.05). All elderly aged 70 years and above were found to be diseased. Only five elderly (2.45%) were well at the time of study in the age group of 60-69 years. All elderly in more than 80 years age group were suffering from some disease.

Table 3: Distribution of Hypertension with alcohol status

Alcohol Status	Hypertension				Total(n=640)	%
	Present (n=320)	%	Absent (n=320)	%		
Current alcoholic	28	(43.07)	37	(56.92)	65	10.15
Ex-alcoholic	0	0	23	(100)	23	3.59
Non-alcoholic	292	(52.89)	260	(47.10)	552	86.25
Total	320	(50)	320	(50)	640	(100)

Chi-square = 26.101 (df = 2, p =< 0.0001)

Above table shows that 43.07% of current alcoholic were hypertensives, whereas 52.89% among non-alcoholic were hypertensives. Among ex-alcoholics, none was hypertensive. The relation between alcohol and Hypertension was found to be statistically significant. In another study by Anupam Prakash (1992) in rural area in Delhi, it was observed that 5.23% persons were' presently taking alcohol while 6.04% were ex-alcoholic. The relation between alcohol and Hypertension was found to be statically significant (Chi square cal > Chi square tab).Out of 54 hypertensive, 16.67% *were* current alcoholics as compared to 558 non-hypertensive, amongst whom 4.13% were consuming alcohol presently. In present study, finding was different from study done by Anupam Prakash (1992), there was negative association of hypertension with alcohol, may be due to more number of females who were mostly non- drinker in comparison to males.

Table 4: Distribution of Hypertension with Smoking status

Smoking Status	Hypertension				Total (n=640)	%
	Present (n=320)	%	Absent (n=320)	%		
Current Smoker	60	(49.58)	61	(50.41)	121	(18.90)
Ex-smoker	29	(33.33)	58	(66.66)	87	(13.59)

Non-smoker	231	(53.47)	201	(46.52)	432	(67.50)
Total	320	50	320	50	640	100

Chi-square = 11.758 (df = 2 , p = 0.0028)

Above table shows that there was a total of 18.90% current smokers; out of which, l8.75% were hypertensive. 13.59% were ex-smokers, out of which 33.33% were hypertensive. A large number of elderly were non-smoker (67.50%), out of which 53.47% were hypertensive. Anupam Prakash et, al (1992) observed that there was statistically negative association of hypertension with smoking. Out of total current smokers, 57.41% were hypertensive current smokers, whereas 12.96% ex-smokers were hypertensive, and 29.63% of non-smokers were hypertensive. Though smoking is a known risk factor for hypertension, but in present study negative association of hypertension with smoking was statistically significant. This indicates that there are some additional factors too responsible for hypertension.

Table 5: Sex wise distribution of level of cognition among studied elderly

Level of cognition	**Male**		**Female**		**Total**	
	No	%	N	%	No	%
Normal	89	47.34	99	52.65	188	29.37
Some degree of mental confusion	155	37.25	261	62.74	416	65
Severe confusion	23	63.88	13	36.11	36	5.62
Total	267	41.71	373	58.28	640	100

Chi-square = 13.123 (df = 2, p < 0.001)

Above table shows statistically significant relation between level of cognition and sex of study population. Cognition was normal in 29.37% elderly whereas 65% had some degree of mental confusion, 5.62% had severe confusion. Severe confusion was more among males (63.88%) than females (36.11%). In another study by Srinivasan Krishnamachari et, al (2010), reported that cognitive impairment was shown to be positively associated with disability and was independent of age, gender and co-morbid medical condition. Present study shows sex differentiation among cognitive impairment. More males were severely confused than females.

Table 6: Association of Morbidity with Socio-economic status in elderly population

SES	**Morbid**		**Healthy**		**Total**	
	No	%	No	%	No	%
Class I	68	(94.44)	4	(5.55)	72	11.25
Class II	158	(91.32)	15	(8.67)	173	27.03

Class III	120	(95.23)	6	(4.76)	126	19.68
Class IV	229	(98.28)	4	(1.71)	233	36.40
Class V	35	(97.22)	1	(2.77)	36	5.62
Total	610	(95.31)	30	(4.68)	640	100

Chi-square = 11.162 (df = 4, p = 0.024)

Above table shows that there is statistically significant association between morbidity and socio-economic status. Maximum morbidity (37.54%) was observed in Class IV Socioeconomic status (98.28%) followed by Class V (97.22%), Class III (95.23%), Class I (94.44%) and Class II (91.32%). In present study, maximum morbidity was in Class IV and V Socio-economic group and all belonged to slum areas and were vulnerable group related to both environmental factors and literacy status.

Table 7: Age and sex wise distribution of illnesses in elderly

Age groups in years	**No examined**	**Persons ill**	**Number of illness**		**Total illnesses**	**Mean no of illnesses**
			Male	Female		
60-74	523	495(94.64)	652	1303	1955	3.94
75-84	114	112(98.24)	261	226	487	4.34
>85	03	3(100)	0	19	19	6.33
Total	640	610(95.31)	913	1548	2461	4.03

Table 7 shows that, out of 640 elderly included in the study, 610 (95.31%) were found to have one or more illnesses at the time of examination. There were 2461 illnesses in 610 persons, 913 in males and 1548 in females. Mean number of illness was 4.03. In male 3.78 whereas in female mean number of illness was 4.19. There was positive association between mean number of illness and advancement of age. Mean illness for young old was 3.94, for old was 4.34 and for very old was 6.33. Prevalence of illness was 100% among very old, 98.24% among old and 94.64% among young old. Similar findings were observed in another study done by M Jamal et al (1977), observed that 88.66% in their study were found to be ill;86.67% males and 90.78% females. Illness was observed more frequently in older age group; 79.36% in young old to 100% in very old.Raj and Prasad (1970) observed that the brunt of illnesses fell on the persons who were 80 years and over.

Table 8: Age wise distribution of total illnesses in study area

Age group (year)	**Slum**		**Urban**		**Total**	
	No	%	No	%	No	%
60-74	950	(75.15)	1005	(83.95)	1955	(79.43)
75-84	295	(23.33)	192	(16.04)	487	(19.78)
>85	19	(1.50)	0	0	19	(0.77)
Total	1264	(51.36)	1197	(48.63)	2461	(100)

Chi-square = 40.538 (df = 2, p < 0.0001)

Above table shows statistically significant relation between age and illness of slum and urban elderly. Overall total illness was more in young old (79.43%), followed by old (19.78%) and very old (0.77%);but the mean was increasing with advancement of age. In urban areas, 83.95% of illnesses

lying in young old whereas in slum areas, 75.15% illnesses were in young old. Young old in urban areas were more overweight and obese and physically less active, whereas young old in slum areas were more active and were heavy activity performer. In old and very old, illnesses were more in slum than urban dwellers.

Table 9: Age sex wise distribution of spells of illness in morbid elderly (n=610)

Age groups in years	**Persons ill**		**Spells of illnesses**			
	Male	Female	Male	Mean Spells	Female	Mean Spells
60-74	176	319	773	4.39	1526	4.78
75-84	65	47	293	4.50	262	5.57
>85	0	3	0	0	22	7.33
Total	241	369	1066	4.42	1810	4.90

Chi-square = 83.484 (df = 2, p < 0.0001)

Above table shows statistically significant relation between mean of spells of illness and age. In both sexes, mean spell was increasing with advancement of age. In males, mean was more (4.42) in comparison to females (4.90).

Table 10: Age wise Health seeking practice of elderly (n=466)

Age group (years)	**Treatment taken**	**Treatment not taken**	**Total**
60-74	361 (97.30%)	10 (2.69%)	371
75-84	92 (100%)	0	92
>85	3 (100%)	0	3
Total	456 (97.85%)	10 (2.14%)	466

Chi- square 2.617 (df 2, p = 0.270).

Above table shows that 97.85% of the elderly were observed to be receiving treatment where as 2.14% were not receiving treatment. With advancement of age, health care seeking was increased from 97.30% in young old to 100% in very old.

Table 11: Sex wise Health seeking practice of elderly (n=466)

Sex	**Treatment taken**	**Treatment not taken**	**Total**
Male	180 (98.90%	2 (1.09%)	182
Female	276 (97.18%)	8 (2.81%)	284
Total	456 (97.85%)	10 (2.14%)	466

Chi-square 1.559 (df=1, p = 0.211).

Above table shows that, out of total 466 elderly who perceived themselves ill, 97.85% were taking treatment whereas 2.14% did not take any treatment. Among males who perceived themselves ill, 98.90% had taken treatment whereas among females 97.18% had taken treatment.

Table 12: Health seeking as per agency of treatment in Urban and Slum elderly

Area	Government	Private	Quacks	Others	Total
Urban	72 (29.26%)	127 (51.62%)	38 (15.44%)	9 (3.65%)	246 (53.94%)
Slum	55 (26.19%)	35 (16.66%)	82 (39.04%)	38 (18.09%)	210 (46.05%)
Total	127 (27.85%)	162 (35.52%)	120 (26.31%)	47 (10.30%)	456 (100%)

Chi-square = 86.24 (df = 3, p= 0.000).

Table 12 shows that, out of total 466 elderly who perceived themselves ill, 456 elderly were taking treatment. Out of 456 elderly who were taking treatment, 53.94% were residing in urban areas whereas 46.05% were residing in slum areas. Out of various agencies, maximum were utilizing private facility (35.52%) followed by Government agency (27.85%), quacks (26.31%) and 10.30% from other source. Among others, traditional healer a Specific tribal population known as *Baiga* residing in hilly tribal area of Chhattisgarh. In urban elderly, maximum were utilizing private facility (51.62%), followed by Government (29.26%), quacks (15.44%) and others (3.65%). Among slum dwellers, maximum elderly went to quacks (39.04%) followed by Government facility (26.19%), others (18.09%) and private facility (16.66%). This may be due low socio-economic status of slum elderly and high socio-economic status among urban dwellers.

Conclusion

The present study finds the morbidity pattern among elderly in Raipur city on a small scale of young growing state of Chhattisgarh, along with the existing health practices and finally to suggest a pattern of health services suitable for the elderly population in the city. The study was conducted in 640 elderly subjects selected randomly from 32 areas including urban and slum areas from 8 zones and 77 wards of Raipur city. Elderly persons in the age group,60 years and above were 63635 (6.3% of total population in Raipur city),out of which only 640 persons (267 males and 373 females) were included in the study. Elderly females 373 (58.28%) out-numbered elderly males 267 (41.71%). Majority of the elderly persons (81.71%) belonged to “young old” age group. Bulk 40.15% of the elderly persons received education upto higher secondary.Graduates and above was only 15.78%, out of which 83.16% were in urban whereas 16.83% were from slum areas.

36.40% of the elderly population belonged to socio-economic Class IV, followed by Class II. A large proportion (84.07%) was living in joint families and 15.93% in nuclear family settings. Only 5.93% were living alone. 51.09% of the elderly were themselves heading the family with males predominating. A large proportion 42.03% of elderly population was unemployed. The principle occupation of the persons who were currently employed in some gainful occupation was agriculture/shop owner/clerical 11.25%, while 18.12% were professional including retired persons. A large proportion 48.28% was financially dependent on others. Only 14.84% were receiving old age pension. Out of total dependent, 66.66% were dependent on their children, 13.26% on grand children and 1.29% on spouse, 14.56% on others. A small proportion 33.59% was aware about various Government welfare schemes for the elderly. The geriatric population is a dependent population. Hence, health care delivery system should reorganise their timing other than routine schedule. Periodic comprehensive health check up, preferably twice a year must be carried out and primary health care delivery must be ensured to geriatric population.

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УДК 316

Изучение показателей заболеваемости среди престарелого населения

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Аннотация. Старение – это биологический процесс, переживаемый человечеством. Тем не менее, озабоченность старением населения представляет собой относительно новое явление, которое возникло из-за значительного увеличения численности и доли пожилых людей в обществе. Феномен старения населения становится серьезной проблемой для политиков во всем мире в течение последних двух десятилетий. Старение населения происходит вследствие понижательной тенденции в рождаемости и смертности, т. е. из-за низкой рождаемости с большой ожидаемой продолжительностью жизни. Ожидаемая продолжительность жизни при рождении, по прогнозам, будут продолжать расти в ближайшие годы по всему миру. Пожилое население имеет специфические проблемы со здоровьем, которые в принципе отличаются от взрослых или молодых людей. Большинство заболеваний в возрасте носят хронический характер: сердечно-сосудистые заболевания, артрит, инсульт, катаракта, глухота, хронические инфекции, рак. Патологических процессов обычно несколько. Доступность и использование медицинских услуг является важнейшим фактором, определяющим состояние здоровья населения. Потребности в медицинских услугах зависят напрямую от возраста населения. Чем старше человек становится, тем в большем здоровья он нуждается. Хотя пожилые люди сталкиваются с многочисленными проблемами со здоровьем, даже тогда, они не считают верным, обращаться за медицинской помощью и, как следствие, многие случаи остаются незарегистрированными и невылеченными, пока не наступают осложнения. Это подчеркивает необходимость укрепления системы медицинского обслуживания для населения пожилого возраста. По словам Паула Уоллес, все люди должны быть готовы провести последние годы жизни достойно в рамках своих собственных ограничений.

Ключевые слова: заболеваемость, пожилое население, старение, физические недостатки, здравоохранение.