Bio-social Profile of Elderly residing in Jaipur City: A Cross-sectional Study

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Abstract—*Elderly population is increasing due to demographic shift in favor of geriatric population. This age group is susceptible for many health problems which have a significant impact on their quality of life. Profile of this population is required to frame comprehensive policies to make ageing a comfortable experience. So this cross-sectional study was carried out from September 2009 to August 2010 on 1620 elderly residing in Municipal corporation area of Jaipur city with the aim to study the biosocial profile of elderly population. Study population consist of 1620 elderly with M:F ratio 0.95. Mean age of elderly was 66.08 years with slight female predominance i.e. 1048 females for 1000 males in Jaipur city. 74.93% were Hindus and likewise majority (65.18%) were of general caste followed by OBC, SC and ST which is 15.92%, 14.44% and 4.22% respectively. 77% were married & living with their spouses and only 2% were living singly either because of separated /divorce with their spouse or they had never married. Majority of elderly were living in joint family and in good housing condition. About half of elderly (45.42%) were either illiterate or just literate, which is mainly because of higher proportion of females in this literacy level group. It was also found that as literacy level increases the proportion of females decreases and for males it is just reverse of it ($p<0.001$). About half (50.49%) of elderies were having source of income either as pension or by self employment. But among females, 81.54% were house wives.*

Key words- Bio-social Profile, Elderly, Geriatric, Metropolitan City, Urban Area.

1. Introduction

Aging is a natural process. Worldwide trend for population of 60 years and above shows 381.2 million people (8.6%) of the total population in (1980) this has increased to 608.7 million (9.9%) in 2000 and is projected at 754.2 million (10.8%) by 2010 and 1011.6 million (12.9%) by 2020.[1] This "demographic time bomb" is nearing explosion in developed nations. Asia, including India, is not far behind.[1]

In India, proportion of elderly (60 years and above) persons has increased from 5.43%in 1951 to, 7.08% in 2001 and projected 8.18% in 2011 and 9.87% in 2021 (Census of India 2001)[2]. Population projection indicates that India will have 198 million 60 plus person in 2030 and 326 million in 2050 when it would be 21% of total population of the country making it the country with the largest elderly population in the world (SRS 2003).[3] The percentage of persons above 60 years of age in India was 7.3% in which male and female percentage was 7.0 and 7.7 respectively. For urban area it was 6.9% in which male and female percentage was 6.6 and 7.3 and for rural area it was 7.5% in which male and female percentage was 7.1 and 7.8 respectively (N.H.P.2008).[4]

In Rajasthan, population of elderly (60 years and above) were 6.5% in which male and female percentage was 5.9 and 7.1 respectively. For urban area it was 6.5 % in which male and female

percentage was 5.9 and 7.2 and for rural area it was 6.4% in which male and female percentage was 5.9 and 7.1 respectively (N.H.P.2008). [4]

Developing countries India face a daunting task ahead to make substantive policy reforms and innovative planning to cope up with the increasing old age population. A closer look is required to the characteristics of this population. Only then can we embark on framing comprehensive policies to make ageing a comfortable experience. So this study was conducted to find out the bio-social profile of elderly residing in a metropolitan city.

2. **Methodology**

After taking approval from Institutional Ethics committee, this community based cross sectional survey was conducted on elderly aged 60 years and above living in Municipal Corporation area of Jaipur city, Rajasthan , from September 2009 to August 2010.

Sample size was calculated 643 subjects at 95% confidence limit and absolute sampling error of 2% assuming 6.9% proportion of elderly (as per SRS 2008). As sampling technique used as 30 cluster so calculated sample size was multiplied by 2^5. So sample size came out to 1286, which was again inflated 20% for contingency addition and came out to 1544. So, for the study purpose 1620 elderly was taken to have 54 elderly from each of 30 cluster.

To start with survey, list of all wards with their respective population was obtained from Municipal Corporation. Then 30 clusters had selected from all the wards of Municipal Corporation as per 30 cluster technique. After selecting the 30 clusters, in the second step colonies were selected within the cluster by lottery method. In case of selected colony not meeting sufficient subject criteria, adjoining colony had taken. To identify elderly included in study, a land mark was identified in the centre of ward/colony previously selected eg, temple, school, and then survey was started from there to have 54 elderly from that selected colony. Likewise the procedure is followed for other clusters. After obtaining written informed consent and ensuring confidentiality and identity of gathered information house to house survey was conducted in identified 30 wards of Jaipur city. House to house survey was done in each identified ward to have 54 elderlies. Thorough personal interview was conducted of each of selected elderly to fill the semi-structured pre-designed and pre-tested performa. B.G.Prassad's classification of socio economic status (updated till April 2010) was used to find out SES of elderly. Likewise the procedure is followed for other clusters.

The list of wards and colonies were selected are as follows:-

S. No.	Ward no.	Colonies	Serial no.	Ward no.	Colonies
1	1	Dadi ka Phatak	16	30	Jawahar nagar
2	3	Ashok Nagar and modi nagar	17	34	Fateh Tiba
3	4	SushilPura	18	37-	Chand pole gate
4	6	C-Scheme	19	41	Chokdi Topkhana Hujuri
5	9	Sri Ram nagar Vistar	20	45-	Moti Singh bhomia ka rasta

6	11	Dharm Park	21	47	Guljar Masjid
7	12	Rajiv Nagar(hasanpura)	22	50	Hida Ki Mori
8	13	Man Sarovar sector 10	23	52	Anand Puri
9	15	Jetpuri(Mahesh nagar)	24	54	Pratap nagar sector 8
10	17	Sitaram colony	25	57	Foota Khurra
11	21	Durgapura	26	60	Uniaro Ka Rasta
12	23	Jagannath Puri	27	62	Nahri ka Naka
13	24	Jagdish Colony	28	65	Sanjay nagar bhatta basti
14	27	Jhalana Basti	29	68	Saket Colony and tirth nagar
15	28	Prem Nagar	30	70	Shyam nagar

Data thus collected were compiled in the form of master chart in MS Excel 2007 worksheet. Parametric and Non Parametric statistical techniques were used with the help of statistical software Primer (version 6). 'p' value <0.05 was taken significant for inferences. Chi-Square Test was used to find associations. 'p' value <0.05 was taken as significant.

3. **Results:**

In this study, mean age of elderly was observed 66.08 years with age range 60 years to 91 years with slight female predominance i.e. 51.18% and 48.82% of male and female respectively. When age is arranged in ascending order then mid numbered (median) elderly was having 65 years of age. Majority were in 60-69 Years age group (76.11%) followed by 70-79 yrs (20.56%) and in 80 yrs and above age group (3.33%). This difference age wise distribution was revealed as per sex then also found with significant (p<0.001) variation. (Table 1)

Table No.1

Age and Sex wise Distribution of Elderly

Age Group (in Years)	Male		Female		Total	
	No.	%	No.	%	No.	%
60-64	269	16.60	394	24.32	663	40.93
65-69	326	20.12	244	15.s06	570	35.18
70-74	116	7.16	133	8.22	249	15.38
75-79	64	3.95	20	1.23	84	5.18
80 and >80	16	0.98	38	2.35	54	3.33
Total	791	48.82	829	51.18	1620	100.00

Chi-square = 75.462 with 4 degrees of freedom; P <0.001

When distribution of elderly according to religion was observed, it was found that, majority (74.93%) were Hindus followed by (15.55%) Muslims (5.80%, Jains and (3.58%) Sikhs. (Figure 1). Likewise maximum elderly (65.18%) were in general category followed by (15.92%) OBC and (14.44%) SC and ST category (4.22%). (Figure 2)

It is evident from this study that majority of study population were married (77%) and only 2% were separated/divorcees/never married. (Figure 3) It was further revealed that none of the elderly female in the study population was either divorced/separated or never married.

It was also found in this study that (26.32%) of study population belonged to socio-economical class IV followed by class I (24.19%), class III (20.68%), class II (16.98%) and class V (11.91%). (Figure 4).

Figure No.1

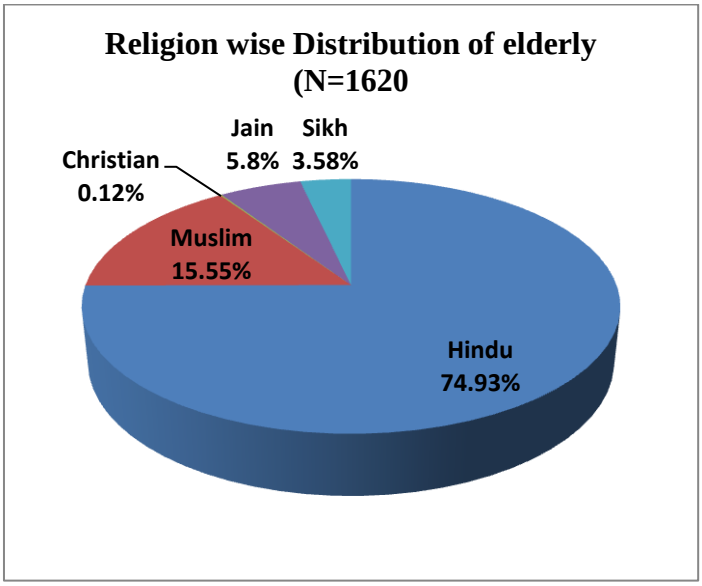
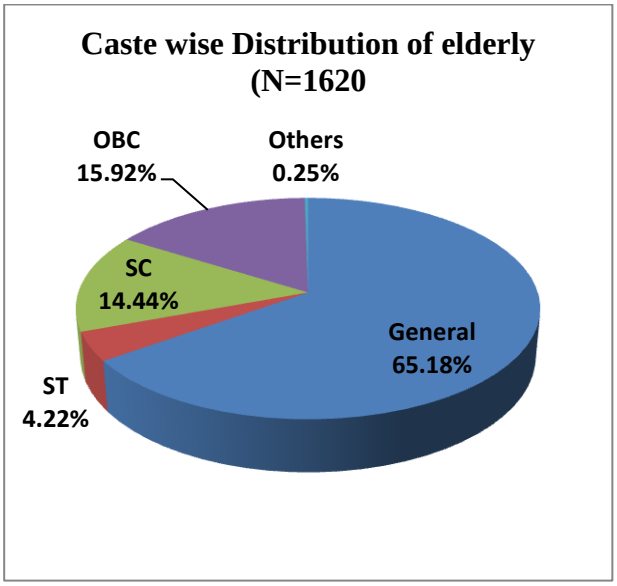


Figure No.2



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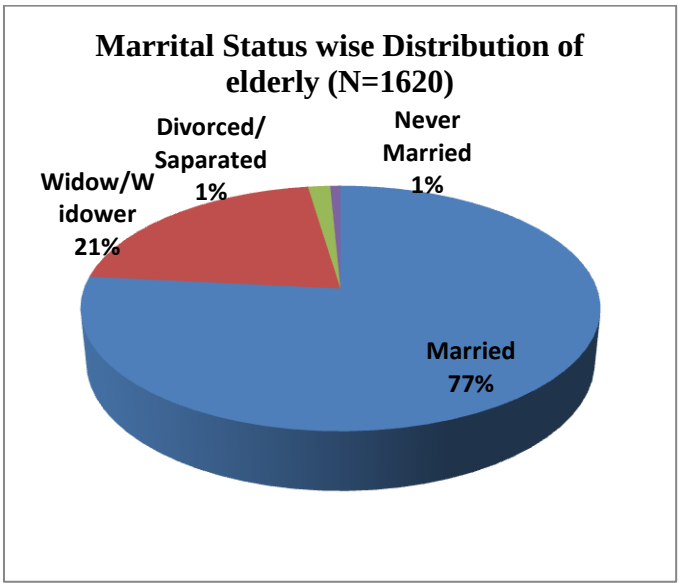
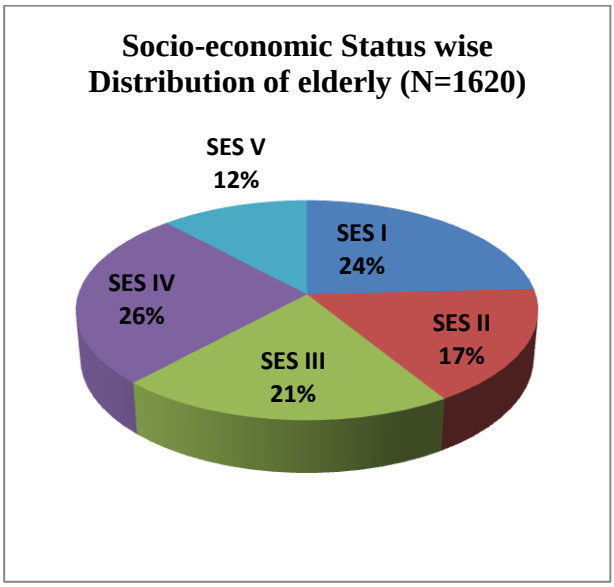
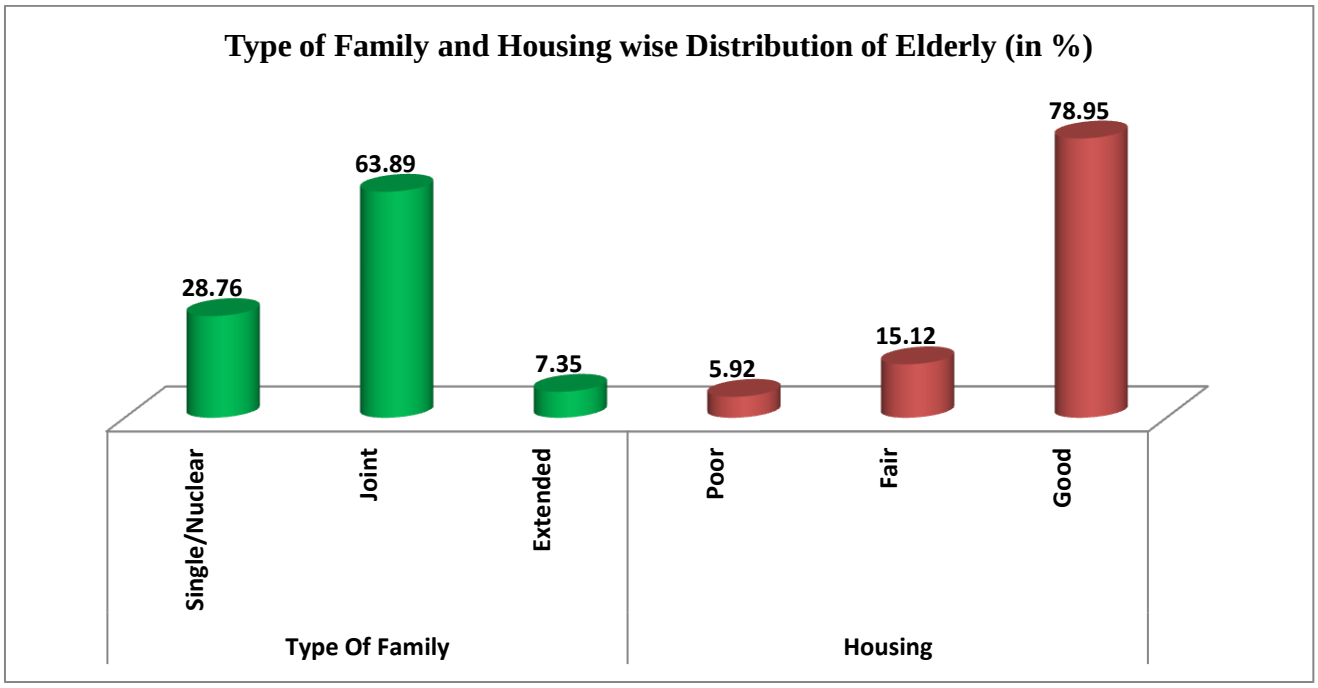


Figure No.4



Out of 1620 elderly, majority of them i.e. 1035 (63.89%) were living in joint family followed by elderly living in single/ nuclear family(28.76%) and only 119 (7.35 %) of elderly lived in extended family. (Figure 5). Likewise, when housing conditions of elderly was explored it was found that majority i.e. 1279 (78.95%) of respondent were living in good housing conditions only 96 (5.92%) were residing in poor housing condition. (Figure 5) The proportion of males living in good housing conditions was 82.80% and that of females was 75.27%.There was significant association (p<0.001) between gender of elderly and housing conditions.



Most of the studied elderly i.e. 45.42% were either illiterate or just literate. Next common group elderly (28.15%) as per education was those who studied upto secondary & graduated. Further it was found that proportion of females were more towards lesser education than males. Likewise 74.87% male were educated up to secondary or higher class while corresponding figure for females was only 13.52%. So it was further revealed that sex wise distribution of elderly as per education was found significant (p<0.001).

Table No.2

Sex and Education wise Distribution of Elderly

Sex → / Education ↓	Male		Female		Total	
	No.	%	No.	%	No.	%
Illiterate	72	9.10	290	34.98	362	27.59
Just Litterate	116	14.66	258	31.12	374	7.78
Primary	45	5.69	109	13.15	154	22.90
Middle	101	12.77	59	7.12	160	41.73

Secondary	195	24.65	49	5.91	244	15.06
Graduate	158	19.97	54	6.51	212	13.09
Post Graduate	54	6.83	8	0.97	62	3.83
Professional	50	6.32	2	0.24	52	3.21
Total	791	100.00	829	100.00	1620	100.00

Chi-square = 438.985 with 7 degrees of freedom; P <0.001

About half of the studied elderly i.e. 50.49% were either pensioners or self employed and others were doing either private job or working as house wife. Among female elderlies, majority (i.e. 81.54%) were working as house wife whereas none of the male was working as house husband. So it was further revealed that sex wise distribution of elderly as per occupation was found with significant (p<0.001) variation.

Table No. 3

Sex and Occupation wise Distribution of Elderly

Sex → / Occupation ↓	Male		Female		Total	
	No.	%	No.	%	No.	%
Pensioner	384	48.55	63	7.60	447	27.59
Private	91	11.50	35	4.22	126	7.78
Own	316	39.95	55	6.63	371	22.90
House Wife/House Husband	0	0.00	676	81.54	676	41.73
Total	791	100	829	100	1620	100

Chi-square = 1114.742 with 3 degrees of freedom; P <0.001

4. Discussion:

The present study found that the percentage of elderly females was slightly more (51.18%) than males (48.82%) giving a sex ratio of 1048 females per thousand males. These observations were well in resonance with other authors. Observations made by Seby et al (2011)[6] Nandi P S et al (1997)[7], Reddy MV et al (1998)[8] and Purna Singh et al (2012)[9] were also almost similar to present study. Even SRS (2003) India survey reported 1136 women for every 1000 men in the age group > 60 years.[3]

The reason for increasing female population can be found in the theory of demographic transition which is characterized to have 3 phases. Phases I of demographic transition is characterized by low life expectancy at birth for both males and females and females life expectancy is further reduced by an increased maternal mortality rate. Second phase is marked by significant improvements in standards of living which lead to markedly reduced maternal mortality rate and reduced mid and later year mortality rates among females leading to an increase in the number of elderly females in

comparison to males which is known as feminization of the elderly population. Phase III is characterized by attainment of the upper limit of female life expectancy, and improved male expectancy leading to narrowing of the gap in male and female population. This trend is beginning to show in advance industrialized countries with gradual reduction in the gender difference. India is just beginning to experience the second phase of demographic transition- which is reflected in this study.

This study also found that majority of the elderly (76.11%) belonged to age group of 60-69 years followed by 20.56% in the age group of 70-79 years and 3.03% in age group of 80 years and above. Subhash etall[10] observed that 63.45% of elderly belonged to 60-69 years followed by 28.07% in the age group of 70-79 years and 8.48% in age group of 80 years and above. National data for the corresponding age group which were 61.74%, 27.39% and 10.87 % respectively (Census 2011)[11]

Observations of present study was well comparable with the study conducted in Udaipur, Rajasthan,[12] Orissa[13] and South Korea[14] where 87.3%, 83% and 80.9% elderly persons were in the age group 60-75 years respectively.

In present study 74.93% were Hindus followed by 15.55% Muslims, 5.80% Jains and 3.58% Sikhs and 71.10%) of the study population belong to socio-economical classes I, III and IV. It was also found in this study that 77.66% of the study population was literate and the collective proportion of graduates and postgraduates approached 20.12%. Female Illiterates were conspicuously more (34.68%) than male illiterates (9.10%). These findings were almost similar to observations made by P R Moharana (2008) [13] who respectively found 78 % literate and female preponderance in illiterates.

When the elderly population was analyzed according to their present occupation 48.54% of males were found to be pensioners while more than three/forth (81.54%) of the elderly females were presently involved in household duties. Similar observations were made by P R Moharana (2008),[13] and Sen Gupta et al (2006) [15] who observed that the urban elderly males are more likely to be better educated, work in organized sector and retire with a pension.

Looking at the type of family of the elderly in the study area, it was found that majority of the elderly (63.89%) lived in joint families. These findings were in resonance with studies Padda A S et al (1998),[16] Bhatia V et al (2003)[17] and Surekha Kishor (2007) [18] also found that more than 60% of elderly lived in joint family.

In present study 76% of the study population was married and 20.86% were widowed. 1.60% were divorced/separated and 0.74% were never married. Proportion of widows was more than widowers. Widowed population 15.80% compared to 5.06% widowers among elderly. This finding gets substantial support from a number of studies from India. [9,13,15,17,18] All these studies report that the percentage of widows is disproportionately higher than that of widowers. The reasons for this are manifold. The most obvious factor is the greater longevity of women compared to men. In addition, men tend to marry younger women sometimes the age gap at marriage being as high as 8-10 years, which compounds the likelihood of women outliving their spouses. Moreover widowers tend to remarry while widow remarriage is still uncommon in India.

CONCLUSIONS

Mean age of elderly was 66.08 years with slight female predominance i.e. 1048 females for 1000 males in Jaipur city. About three forth were Hindus and likewise majority were of general caste followed by OBC, SC and ST. More than 3/4th were married & living with their spouses and only very few i.e. 2% were living singly either because of separated /divorce with their spouse or they had never married.

Majority of elderly were living in joint family and in good housing condition. About half of elderly were either illiterate or just literate, which is mainly because of higher proportion of females in this literacy level group. It was also found that as literacy level increases the proportion of females decreases and for males it is just reverse of it. About half of elderies were having source of income either as pension or by self employment. But among females, more than 3/4 were house wives.

REFERENCES

1. World Health Organization: population Ageing – A Public Health Challenge. WHO 1998;Fact Sheet N.135
2. Registrar General of India: Census of India 2001(Provisional):2002 url http://www.censusindia.net/results/2001_Census_datrelease_list.html
3. Sample Registration System (SRS) Estimates of India, 2003
4. Statistical report 2005,Registrar general of India, National Health Profile 2008
5. Dr. Kusum Lata Gaur, Dr. S.C. Soni and Dr. Rajeev Yadav. Community Medicine: Practical Guide and Logbook. CBS Publications and Distribution Pvt. Ltd. 4819/XI, Prahlad Street, 24 Ansari Road, Dariyaganj, New Delhi India. ISBN: 978-81-23-2394-9. 1st Edition 2014. Page- 197-8
6. Seby K, Chaudhury S, Chakraborty R. Prevalence of psychiatric and physical morbidity in an urban geriatric population. Indian J Psychiatry 2011;53:121-7
7. Nandi P S, Banerjee G Mukherjee SP, et al : A study of psychiatric morbidity of the elderly population of a rural community in west Bengal Indian J Psychiatry 1997;39(2):122-9
8. Reddy VM, Chandrashekar CR. Prevalence of mental and behavioural disorders in India : a meta-analysis. Indian J Psychiatry. 1998 Apr; 40(2):149-57.
9. A. Purna Singh, K. Lokesh Kumar, C. M. Pavan Kumar Reddy. Psychiatric Morbidity in Geriatric Population in Old Age Homes and Community: A Comparative Study. Indian Journal of Psychological Medicine | Jan - Mar 2012 | Vol 34 | Issue 1
10. Subhash Biloniya, Afifa Zafer, Kusum Gaur, R.K. Manohar and Lovesh Saini. Psychiatric wellness of geriatric population of Jaipur City. IJFCM 2015 Vol 2 Issue 2
11. Census 2011. New Delhi: Office of the Registrar General and Census Commissioner, Government of India; 2011
12. Rahul Prakash,S.K.Choudhary, Udai Shankar Singh-A study of Morbidity pattern among geriatric population in an urban area of Udaipur. Rajasthan. Indion Journal of Community Medicine Vol, xxix No.1 Jan-March 2004
13. PR Moharana,NC Sahni, T Sahu. Health Status of Geriatric population attending the preventive Geriatric clinic of a tertiary health facility Brahmapur, Orissa. Journal of Community Medicine, January 2008, Vol .4 (2)
14. Eun-kyung Woo, Changsu Han, Sangmee Ahn jo et al. Morbidity and related factor among elderly people in South Korea: Results from the Ansan Geriatric (AGE) Cohort study.BMC Public Health .2007;7:10
15. Sengupta D K et al. Health status of males aged 55years and above in a slum of Kolkata. Indian Journal of Public Health Vol.27 (2) Apr 1982
16. Padda AS, Mohan V, Singh J, et al. Health profile of aged persons in urban and rural field practice area of medical college Amritsar. Ind J Com Med 1998;23:72-76
17. Bhatia V et al . Social and Functional status of older persons in a North Indian Community. Asia Pacific Journal of Public Health 2003; 15 (1)
18. Surekha Kishor, Ruchi Jayal, Jayanti Sewal and Ramesh Chandra. Study of morbidity status of the geriatric population at Rural Health Training Centre of Community Medicine, Dehradun, Indian Journal of Community Medicine Vol. 9 No.2 ,2007 Apr-Jun