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Research Article

Morbidity Status and Its Social Determinants among Elderly Population of Lucknow District, India

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Abstract: It is estimated that the no. of elderly persons would grow to 137 million by 2021 in our country. Aging is a universal process. Old age is associated with physical, mental and social problems. This study was designed to examine the various factors influencing the morbidity status among elderly in Lucknow district, India. The present cross-sectional study was carried out among elderly in Lucknow district from October 2011 to September 2012. Multi stage random sampling technique was used to select elderly. Sample size of 400 (200 urban and 200 rural) elderly of Lucknow district, were interviewed and, and information regarding their socio-demographic characteristics was collected and clinical examination was carried out. Statistical analyses were done using percentage and Chi-square test. *P* values less than 0.05 were considered significant. Of 400 elderly, 32.4% males and 15.5% females were in the age group of 60-64 years. In our study most common problem that was associated both with males (65.7%) and females (75.4%) elderly in rural areas were musculoskeletal problems. Significant association of ear problems was observed with age. In rural areas eyes and ear problems were significantly associated with religion, while in urban areas genitourinary problems is significantly associated. This study reveals a high prevalence of morbidity status. A strong need exists for planning and programming intervention activities for health needs in the area.
Keywords: Morbidity status, Elderly, Lucknow district

INTRODUCTION

Ageing is a universal phenomenon associated with deteriorating health status [1]. In recent years, there has been a sharp increase in the number of older persons worldwide [2]. The proportion of the population aged 60 and over, is also growing each year. By the year 2025, the world will host 1.2 billion people aged 60 and over and rising to 1.9 billion in 2050 [3]. Health status is an important factor that has a significant impact on the quality of life of an elderly population [4]. In recent years there has been an increasing international awareness of health issues relating to aging populations. The health problems of the elderly are complicated by social, economic and psychological interactions to a greater degree than younger people [5]. Morbidity among elderly people has an important influence on their physical functioning and psychological well-being. Many elderly have several disorders at the same time. The incidence of diseases increases with age [6]. The importance of early surveillance of the health needs of elderly people has been emphasized, Knowledge of the situation and circumstances of the elderly population is essential to the provision of cost- effective services and the planning of strategies for intervention and care [5].

This study brings out the present morbidity status by age and related underlying factors influencing the prevalence of morbidity among elderly in Lucknow district. It will also provide baseline information for carrying out future interventional studies to deal with the problems of elderly. This study was undertaken among elderly with the following objectives:

- To find out morbidity status of elderly
- To analyze factors influencing the morbidity status

MATERIALS AND METHODS

The study protocol was submitted to the Institutional Ethical Committee and clearance was obtained. Informed consent of the elderly was taken before the study. The present cross-sectional study was carried out among elderly in Lucknow district from October 2011 to September 2012. Sample size of 400 (200 urban and 200 rural) elderly of Lucknow district, were interviewed and examined.

The sample size was calculated using the formula, $n=Z^2_{(1-\alpha/2)}pq/d^2$ (where $Z(1-\alpha/2)$ =1.96 at 95% confidence level; p=prevalence of morbidity, q=1-p; d=allowable error). For this study, we had taken 52.2% prevalence of morbidity [7] and d=10% of p. Taking into account 10% as non-respondents, the total number came out to be 400. Multistage random sampling technique was used to select the requisite number of elderly.

First stage

Firstly the sample size of 400 was divided equally into Rural and Urban areas.

Second stage

Rural Areas

A list of total no. of villages under Rural Health Training Centre was obtained and there were 12 villages in total. Out of the 12 villages 6 villages were selected by simple random sampling.

Urban Areas

A list of total no. of mohallas under Urban Health Training Center were obtained Out of the total 20 mohallas 10 were selected for study by Simple random sampling.

Third stage

Simple random technique (using the last digit of currency) was used to select the first household for the survey. Then starting from the first household on the left side of the road all the houses , where an elderly were available ,were surveyed till the desired number of elderly met from each of the 6 villages under rural health training center and each of 10 mohallas of Urban Health Training Center.

Inclusion and exclusion criteria

Elderly residing for at least six months in the area were be considered as a resident and included in the study. Elderly whose native place is other than present place of residence but the duration of stay was more than six months, were included in the study. Those elderly living in the area for less than six months were not included in the study. Those elderly, who were non cooperative or refused to provide necessary information, were not included in the study.

Data collection

A predesigned and pretested interview schedule was used to elicit information on socio-demographic characteristics and required information. The schedule was pretested in a sample of 50 elderly, 25 each from urban and rural areas. Necessary modifications were made in the schedule to overcome the difficulties encountered during pretesting.

The socio-demographic data were collected, which consisted of information on age, sex, marital status, religion, caste and the type of family. Data regarding morbidity status were collected using pre-tested and finalized interview schedule. Elderly was examined physically from head to toe and any signs and symptoms of illness were recorded. Questions were asked about the different health problems faced by the elderly. The questionnaire included the questions on different systems symptoms. The systems that were included were central nervous system, eye, ear, respiratory system, cardiovascular symptoms, gastrointestinal tract, genitourinary, musculoskeletal disorders and endocrinological disorders. The duration of the symptoms was recorded and they were also enquired about the medications taken. Elderly were also questioned about the duration of taking the medications for a particular problem.

Variable studied

Socio-demographic profile (age, sex. religion, caste, type of family and marital status) and morbidity status were studied.

Statistical analysis

Data were entered in Microsoft Office Excel and analyzed with Statistical Package for the Social Sciences (SPSS) version 16.0. Data were analyzed using percentages and Pearson's Chi-square test for normal distribution. *P* values less than 0.05 were considered significant.

RESULTS

Table 1 Shows that more than one third (38.2%) of the males and 15.3% of females in rural area were in the age group of 60-64 years, in urban areas 28.2 % of males and 15.8% of females belonged to 60-64 yrs age groups. 29.2% of males and 48.6% of females in rural areas belonged to age group 65-69 years, in urban areas 31.5% of males and 40.8% of females were of the age group of 65-69 yrs.

About one fifth (20.2%) of the males and 31.5% of females of rural areas were in the age group of 70-74 years, in urban areas 25.0% of males and 38.2% of females were in the age group 70-74 yrs.

Only 12.4% of the male and 4.5% of females in rural areas were ≥75 years, in urban areas 15.3% of males and 5.3% of females were ≥75 yrs. In total, 32.4% of the males and 15.5% of females were in the age group of 60-64 years. However, 30.5% of the males and

45.5% of females belonged to 65-69 years. About one fifth (23%) of the males and 34.2% of females were in the age group of 70-74 years. Only 14.1% of males and 4.8% of females were ≥75 years.

Table 2 Shows that 76.4% of males and 78.4% of females in rural areas had musculoskeletal problems and 58.1% of males and 71.1% of females of urban areas had musculoskeletal problems. In all 65.7% of males and 75.4% of females had musculo skeletal problems.

More than half of the males (68.5%) and 73% of females in rural area had symptoms of eye problem. However, 51.6% males and 67.1% females in urban area had problems of eye. Overall 58.7% of males and 70.6% of females had eye problems. 47.2% of males and 26.1% of females in rural areas and 28.2% of males and 21.1% of females in urban areas had problems of respiratory systems. Overall 36.2% of males and 24.1% of females had respiratory problems. 41.6% of males and 36% of females in rural areas and 31.5% of males and 38.2% of females of urban areas had problems of gastrointestinal tract. Overall 35.7% of males and 36.9% of females had gastrointestinal problems.

Table 3 shows the association between age and morbidity status of the elderly. The ear problem was significantly ($p<0.0001$) higher among the age group 70-74 (32.7%) than ≥75 years (28.2%), 65-69 (15.3%), 60-64 (8.2%) years. All other symptoms were almost similar ($p>0.05$) among all the age groups.

Table 4 shows that the symptom of eye and ear was significantly ($p=0.002$) higher among Hindu (77.1%) elderly than Muslims (55.4%) in the rural area. The symptoms eye and ear was also higher among Hindu than Muslims of urban area, however, this was statistically insignificant ($p>0.05$). Genitourinary symptoms were significantly higher ($p=0.002$) in hindus than muslims in urban areas.

Table 5 shows that the symptoms of musculoskeletal was significantly higher ($p=.001$) among OBC (80.9%) than general (68.4%) and SC/ST (25%) in rural area. Symptom of eye and ear ($p<.05$) was also significantly higher in O.B.C than S.C./S.T. and General caste in rural areas.

Table 6 shows there was no significant ($p>0.05$) difference among the elderly living in joint and nuclear family type according to symptom in both rural and urban area.

Table 7 Shows that none of the symptoms were significantly ($p>0.05$) associated with the marital status of elderly in both rural and urban area.

Table 1: Distribution of elderly according to age & sex by area of residence

Age group	Rural (n=200)		Urban (n=200)		Total (n=400)	
	Male (n=89) No. (%)	Female (n=111) No. (%)	Male (n=124) No. (%)	Female (n=76) No. (%)	Male (n=213) No. (%)	Female (n=187) No. (%)
60-64	34 (38.2)	17 (15.3)	35 (28.2)	12 (15.8)	69 (32.4)	29 (15.5)
65-69	26 (29.2)	54 (48.6)	39 (31.5)	31 (40.8)	65 (30.5)	85 (45.5)
70-74	18 (20.2)	35 (31.5)	31 (25.0)	29 (38.2)	49 (23.0)	64 (34.2)
≥75	11 (12.4)	5 (4.5)	19 (15.3)	4 (5.3)	30 (14.1)	9 (4.8)

Table 2: Distribution of elderly according to morbidity by area of residence

Morbidity#	Rural (n=200)		Urban (n=200)		Total (n=400)	
	Male (n=89) No. (%)	Female No. (%) (n=111)	Male (n=124) No. (%)	Female (n=76) No. (%)	Male (n=213) No. (%)	Female (n=187) No. (%)
Eye	61 (68.5)	81 (73.0)	64 (51.6)	51 (67.1)	125 (58.7)	132 (70.6)
Ear	14 (15.7)	30 (27)	19 (15.3)	16 (21.1)	33 (15.5)	46 (24.6)
Respiratory	42 (47.2)	29 (26.1)	35 (28.2)	16 (21.1)	77 (36.2)	45 (24.1)
CVS	36 (40.4)	49 (44.1)	45 (36.3)	30 (39.5)	81 (38)	79 (42.2)
GIT	37 (41.6)	40 (36)	39 (31.5)	29 (38.2)	76 (35.7)	69 (36.9)
Genitourinary	25 (28.1)	39 (35.1)	15 (12.1)	20 (26.3)	40 (18.8)	59 (31.6)
Musculoskeletal	68 (76.4)	87 (78.4)	72 (58.1)	54 (71.1)	140 (65.7)	141 (75.4)

#Multiple response

Table 3: Association between age of elderly and morbidity status

Symptoms#	60-64 yrs (n=98)		65-69 yrs (n=150)		70-74 yrs (n=113)		≥75 yrs (n=39)		p-value
	No	%	No	%	No	%	No.	%	
Eye	57	58.2	98	65.3	77	68.1	25	64.1	0.49
Ear	8	8.2	23	15.3	37	32.7	11	28.2	<0.0001*
Respiratory	33	33.7	42	28	36	31.9	11	28.2	0.77
CVS	32	32.7	64	42.7	52	46	12	30.8	0.12
GIT	35	35.7	59	39.3	37	32.7	14	35.9	0.74
Genitourinary	20	20.4	43	28.7	26	23	10	25.6	0.48
Musculoskeletal	69	70.4	113	75.3	75	66.4	75	66.4	0.25

#Multiple response, *Significant

Table 4: Association between religion of elderly and morbidity status

Systems#	Rural (n=200)		p-value	Urban (n=200)		p-value
	Hindu (n=144) No. (%)	Muslim (n=56) No. (%)		Hindu (n=96) No. (%)	Muslim (n=104) No. (%)	
Eye	111 (77.1)	31 (55.4)	0.002*	58 (60.4)	57 (54.8)	0.42
Ear	40 (27.8)	4 (7.1)	0.002*	20 (20.8)	15 (14.4)	0.23
Respiratory	52 (36.1)	19 (33.9)	0.77	24 (25)	27 (26)	0.87
CVS	67 (46.5)	18 (32.1)	0.06	34 (35.4)	41 (39.4)	0.55
GIT	58 (40.3)	19 (33.9)	0.40	38 (39.6)	30 (28.8)	0.10
Genitourinary	49 (34)	15 (26.8)	0.32	25 (26)	10 (9.6)	0.002*
Musculoskeletal	112 (77.8)	43 (76.8)	0.88	63 (65.6)	63 (60.6)	0.46

#Multiple response, *Significant

Table 5: Association between caste of elderly and morbidity status

Morbidity#	Rural (n=200)			p-value	Urban (n=200)			p-value
	SC/ST (n=8) No. (%)	OBC (n=173) No. (%)	General (n=19) No. (%)		SC/ST (n=2) No. (%)	OBC (n=150) No. (%)	General (n=48) No. (%)	
Eye	4 (50)	129 (74.6)	9 (47.4)	0.01*	0 (0)	90 (60)	25 (52.1)	0.16
Ear	0 (0)	43 (24.9)	1 (5.3)	0.04*	0 (0)	25 (16.7)	10 (20.8)	0.64
Respiratory	0 (0)	62 (35.8)	9 (47.4)	0.06	0 (0)	34 (22.7)	17 (35.4)	0.14
CVS	1 (12.5)	78 (45.1)	6 (31.6)	0.11	0 (0)	53 (35.3)	22 (5.8)	0.23
GIT	2 (25)	69 (39.9)	6 (31.6)	0.56	0 (0)	56 (37.3)	12 (25)	0.17
Genitourinary	0 (0)	57 (32.9)	7 (36.8)	0.13	0 (0)	28 (18.7)	7 (14.6)	0.65
Musculoskeletal	2 (25)	140 (80.9)	13 (68.4)	0.001*	0 (0)	99 (66)	27 (56.3)	0.08

#Multiple response, *Significant

Table 6: Association between type of family of elderly and morbidity status

Systems #	Rural (n=200)		p-value	Urban (n=200)		p-value
	Joint (n=54) No. (%)	Nuclear (n=146) No. (%)		Joint (n=50) No. (%)	Nuclear (n=150) No. (%)	
Eye	35 (64.8)	107 (73.3)	0.24	31 (62.0)	84 (56.0)	0.45
Ear	8 (14.8)	36 (24.7)	0.13	11 (22.0)	24 (16.0)	0.33
Respiratory	16 (29.6)	55 (37.7)	0.29	15 (100.0)	146 (100.0)	0.39
CVS	18 (33.3)	67 (45.9)	0.11	24 (48.0)	51 (34.0)	0.07
GIT	17 (31.5)	60 (41.1)	0.21	20 (40.0)	48 (32.0)	0.30
Genitourinary	14 (25.9)	50 (34.2)	0.26	6 (12.0)	29 (19.3)	0.23
Musculoskeletal	37 (68.5)	118 (80.8)	0.06	34 (68.0)	92 (61.3)	0.39

#Multiple response, *Significant

Table 7: Association between marital status of elderly and Morbidity status

Morbidity#	Rural				p-value	Urban				p-value
	Married (n=80) No. (%)	Separated (n=43) No. (%)	Widow (n=41) No. (%)	Single (n=36) No. (%)		Married (n=93) No. (%)	Separated (n=40) No. (%)	Widow (n=31) No. (%)	Single (n=36) No. (%)	
Eye	60 (75.0)	30 (69.8)	32 (78.0)	20 (55.6)	0.12	50 (53.8)	24 (60.0)	18 (58.1)	23 (63.9)	0.74
Ear	18 (22.5)	8 (18.6)	11 (26.8)	7 (19.4)	0.80	18 (19.4)	5 (12.5)	5 (16.1)	7 (19.4)	0.78
Respiratory	27 (33.8)	11 (25.6)	15 (36.6)	18 (50.0)	0.15	21 (22.6)	9 (22.5)	11 (35.5)	10 (27.8)	0.50
CVS	33 (41.3)	20 (46.5)	17 (41.5)	15 (41.7)	0.94	35 (37.6)	12 (30.0)	12 (38.7)	16 (44.4)	0.63
GIT	32 (40.0)	17 (39.5)	17 (41.5)	11 (30.6)	0.75	31 (33.3)	15 (37.5)	8 (25.8)	14 (38.9)	0.67
Genitourinar	25 (31.3)	14 (32.6)	19 (46.3)	6 (16.7)	0.05	14 (15.1)	9 (22.5)	5 (16.1)	7 (19.4)	0.75
Musculoskeletal	57 (71.3)	35 (81.4)	36 (87.8)	27 (75.0)	0.18	54 (58.1)	28 (70.0)	19 (61.3)	25 (69.4)	0.47

#Multiple response

DISCUSSION

In this study about 38.2% of the males and 15.3% of females in rural area were in the age group of 60-64 years and 28.2 % of males and 15.8% of females in urban areas were in the age group of. 60-64 yrs. However, 29.2% of males and 48.6% of females in rural areas were in the age group of 65-69 years and 40.8% of males and 31.5% of females in urban areas were in age group 65-69 yrs. One fifth (20.2%) of the males and 31.5% of females in the rural areas were in the age group of 70-74 years. Only 12.4% of the males and 4.5% of females in rural areas were >=75 years. In our study most of the elderly belonged to age group of 65-69 yrs and this corresponds with the findings reported by Singh *et al.* [8].In contrast in other study by Gupta *et al.* [9] in Madhya Pradesh 65-69 yrs age group consisted of least no.(11%) of elderly individuals and the largest group comprised of 60-64 (42.9%) yrs. age group.

Musculoskeletal Problems

In our study most common problem that was associated both with males and females elderly in rural areas were musculoskeletal problems that was followed by Eye problems and that was followed by cardiovascular problems. Our study had reported 76.4% of males and 78.4% of females in rural areas had musculoskeletal problems and 58.1% of males and 71.1% of females in urban areas had musculoskeletal problems. At all 65.7% of males and 75.4% of females had musculoskeletal problems. Symptoms of musculoskeletal problems was significantly higher (p=.001) among OBC (80.9%) than general (68.4%) and SC/ST (25%) in rural area.

Higher percentages of musculoskeletal disorders in our study particularly in aged population in rural areas is mostly due to load bearing activities in rural areas. Females have reported a greater percentage of musculoskeletal problems and that is consistent with other studies. In a study conducted by Miranda *et al.*[10] had reported 86% of females having musculoskeletal problems. This is on a higher side than what has been reported in our study. In contrast a study conducted in Varanasi by Tiwari *et al.* [11] had reported 53.15% of elderly having musculoskeletal problems. In other study in Ahmadabad by Banker *et al.* [12] musculoskeletal problems constituted 60.2% of elderly population and this was similar to our study.

Eye problems

In our study eye problems were reported in 68.5 % 0f males and 73.0% of females in rural areas and 51.6% of males and 67.1% of females in urban areas. In all 58.7% of males and 70.6% of females had eye problems. Symptom of eye was also significantly higher (p<.05) in O.B.C than S.C./S.T. and General caste in rural areas. In other study conducted by kumar et al(2005)[13] had reported 62.6% of elderly having eye problems. Purty *et al.* [14] had observed that 57.1% of elderly were having eye problems. A community based study in rural areas by Haque *et al.* [15] had reported eye problems in 63.6% of elderly.In another study by Prakash *et al.* [16] 70% of elderly had reported eye problems. In another study by Lokare *et al.* [17] had reported that 64% of elderly had vision problems. The findings of our study correspond to findings of other studies that have been listed above.

Cardiovascular problems

In our study 40.4% of males and 44.1% of females in rural areas had reported problems of cardiovascular systems. In urban areas 36.3% of males and 39.5 % of females had reported cardiovascular problems. In all 38% of males and 42.2% of females had reported cardiovascular problems. In a study conducted by Srivastava *et al.* [18] had observed overall 25.4% of elderly population had reported a cardiovascular problem. In contrast in other study by Banker *et al.* [12] cardiovascular problems amongst elderly were reported as 56.6%. There is a slightly greater percentage of elderly reporting cardiovascular problems that may be due to a greater use of tobacco among the elderly which has been already reported in our study.

Respiratory problems

In our study 47.2% of elderly males and 26.1% of elderly females in rural areas had respiratory problems and 28.2% of elderly males and 21.1% of elderly females in urban areas had respiratory problems. In all 36.2% of males and 24.1% of females had respiratory problems. This has been supported by study conducted by Haque *et al.* [15] that had observed 37.7% had respiratory problems. In other study by kishore *et al.* [1] respiratory problems were found to be 36.1%. The findings of our study are comparable with these studies.

Gastrointestinal problems

In our study 41.6 % of elderly males and 36 % of elderly females had gastrointestinal problems. In urban areas 38.2% of males and 35.7% of females had gastrointestinal problems in all 35.7% of males and 36.9% of females had gastrointestinal tract problems. In contrast other study conducted by Suwarna *et al.* [19] reported that 58.3% of elderly males and 53.7% of elderly females had gastrointestinal tract problems. In another study conducted by Srivastava *et al.* [18] had reported overall 36.4% of elderly had gastrointestinal morbidity.

The findings of our study are similar to the study by Srivastava *et al.* [18] this may be due to similar geographical pattern and food habits.

Ear problems

In our study 15.7% of elderly males and 27% of elderly females in rural areas and 15.3% of elderly males and 21.1 % of elderly females had ear problems. In all 15.5% of elderly males and 24.6% of elderly females had ear problems. Ear problem was significantly ($p=0.005$) higher among the >75 years (15.4%) as compared to the age group 70-74 (10.6%), 60-64 (4.1%) and 65-69 (2.7%) years. Symptoms of ear ($p<.05$) was also significantly higher in O.B.C than S.C./S.T. and General caste in rural areas.

In study conducted by Srivastava *et al.* [18] had observed 16.6% of elderly had ear problems. In a study conducted in Varanasi by Tiwari *et al.* [11] had reported 20.46 % of elderly suffering from ear and eye problems. A study by Bunnag c *et al.* [20] reported prevalence of ear diseases as 16.3%. The percentages of elderly suffering from ear problems are nearly consistent with other studies as reported above.

Genitourinary problems

In our study 28.1% of elderly males and 35.1% of elderly females in rural areas and 12.1% of elderly males and 26.3 % of elderly females had genitourinary problems. In all 18.8% of elderly males and 31.6 % of elderly females had genitourinary problems. Genitourinary symptoms were significantly higher ($p=0.002$) in hindus than muslims in urban areas. In other study conducted by Srinivasan *et al.* [21] observed overall genitourinary problems prevalence of 27.9%.This finding is similar to our study. Genitourinary problems are higher in women and previous studies done had demonstrated that women have a higher percentage of genitourinary problems.

CONCLUSION

Old age is usually associated with increasing health problems. The ageing population is both a medical and sociological problem. It makes a greater demand on the health services of a community.

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REFERENCES

1. Kishore S, Juyal R, Semwal J, Chandra R; Morbidity Profile of Elderly Persons. JK Science, 2007; 9: 87-89.
2. Hafez G, Bagchi K, Mahaini R; Caring for the elderly: a report on the status of care for the elderly in the Eastern Mediterranean Region. EMHJ, 2000; 6(4): 636-643.
3. World Population Prospects: The 2002 Revision, Highlights. New York: United Nations Population Division; 2003. (ESA/P/WP. 180).
4. Joshi K, Kumar R, Avasthi A; Morbidity profile and its relationship with disability and psychological distress among elderly people in Northern India. Int J Epidemiol., 2003; 32(6): 978-987.
5. Abolfotouh MA, Daffallah AA, Khan MY, Khattab MS, Abdulmoneim I; Psychosocial assessment of geriatric subjects in Abha City, Saudi Arabia. East Mediterr Health J. 2001; 7(3): 481-491.
6. Joshi K, Kumar R, Avasthi A; Morbidity profile and its relationship with disability and psychological distress among elderly people in Northern India. Int J Epidemiol., 2003; 32(6): 978-987.

7. Baldev R, Prasad BG; Prevalence of diseases among the geriatric population. Geriatrics, 1970; 25: 142-158.
8. Singh N, Chopra H, Singh JV, Bhatnagar M, Garg SK, Bajpai SK; The Psycho-social Profile of the Elderly People in Urban Area of Meerut City. Journal of the Indian Academy of Geriatrics, 2009; 5: 165-170.
9. Gupta SK, Varshney A, Tiwari SC, Shinde M; The investigation of medical and psychosocial problems of geriatric population in the urban area of Madhya Pradesh in India. Open Journal of Internal Medicine, 2012; 2(3): 170-175.
10. Miranda VS**,** deCarvalho VBF, Machado LAC, Dias JMD; Prevalence of chronic musculoskeletal disorders in elderly Brazilians: a systematic review of the literature. BMC Musculoskeletal Disorders, 2012; 13: 82.
11. Tiwari S, Sinha AK, Patwardhan K, Gehlot S, Gambhir IS, Mohapatra SC; Prevalence of Health Problems Among elderly: a study in a Rural population of Varanasi. Indian J Prev Soc Med., 2010; 41: 226-230.
12. Banker K, Prajapati B, Kedia G; Study of health profile of residents of geriatrics home in Ahmedabad district. National Journal of Community Medicine, 2011; 2(3): 378-382.
13. Kumar AT, Sowmiya KR, Radhika G; Morbidity pattern among the elderly people living in a rural southern india-Crossectional study. Nat J Res Com Med., 2012; 1(1):1-60.
14. 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.
15. Haque MJ, Alam MR; Health Problems of the Geriatric People: A Community Based Study in a Rural Area in Bangladesh. TAJ: Journal of Teachers Association, 2003; 16: 15-19.
16. Prakash R, Choudhary SK, Singh US; A study of morbidity pattern among geriatrics population in an urban area of Udaipur, Rajasthan. Indian Journal of Community Health, 2004; 29(1): 35-40.
17. Lokare L, Nekar MS, Mahesh V; Quality of Life and Restricted Activity Days Among the old aged. Int J Biol Med Res., 2011; 2(4): 1162–1164.
18. Srivastava K, GuptaSC, kaushal SK, Chaturvedi M; Morbidity Profile of Elderly: A Cross Sectional Study of Urban Agra. Indian Journal of Community Health, 2010; 2(1, 2): 51-55.
19. Suwarna M, Jayashree N; An epidemiological study in elderly and its morbidity in urban slum population in Miraj district, Maharashtra. International Journal of Public Health and Human Rights, 2011; 1(1): 5-10.
20. Bunnag C, Prasansuk S, Nakorn AN, Jareoncharsri P; Ear diseases and hearing in the Thai elderly population. part II. A one year follow-up study. Journal of the Medical Association of Thailand, 2002; 85(5): 532-539.
21. Srinivasan K, Vaz M, Thomas T; Prevalence of Health related Disability among community dwelling urban elderly from middle socioeconomic strata in Bangaluru, India. Indian J Med Res., 2010;131: 515-521.