RESEARCH ARTICLE

GENDER AND SEASONAL VARIATIONS IN PATIENTS REPORTING TO GERIATRICS CLINIC AT A TERTIARY CARE HOSPITAL IN NORTH INDIA – AS A PRELUDE FOR PLANNING

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ABSTRACT

Introduction: The profile of the geriatric population, who are coming to a health institution is an essential step to lay down the premises for planning any strategy to provide proper health-care facilities for this group of people. The present study was undertaken with the objectives: (1) to find out the magnitude and the trend of cases reporting in geriatric clinic at a tertiary care hospital over a period of eight years, and (2) to find out gender and seasonal differences of geriatric cases, if any.

Methods & results: Secondary data for eight years i.e. from March 2008 to February 2016 was obtained from Geriatric clinic at tertiary care institution and analysed as per gender and seasons. Total of 129 087 elderly patients reported to geriatric clinic. Majority of the elderly were male (67 033, 51.9%) and reported during summer (45 824, 35.5%). More number of male geriatric cases reported in the clinic (male: female=1.03 – 1.23) during study period except in the year 2015-2016. No significant difference was found in reporting of patients as per gender (p=0.69). The seasonal variations shown indefinite trend with statistically significant difference was found overall (p=0.00). A significant drop in reporting of geriatric patients was seen from the year 2011-2012 (20 316 cases) to the year 2012-2013 (12 989 cases) (p=0.00). The patients in the age group of 60-69 years reported more during all seasons as compare to patients in other age groups, and this difference was found to be statistically significant (p=0.00).

Conclusion: The gender of elderly, type of season and preference for female physicians by female geriatric patients, effects the reporting by elderly patients in geriatric clinic. These findings will help in improving overall planning and management of health care of elderly in an institution.

INTRODUCTION

Geriatric population (people aged 60 years & above) in India has increased from 56.7 million (Census, 1991) to 103.8 million (Census, 2011) in last two decades. It is mainly due to availability of better health services which lead to decreased morbidity and mortality rates in this age group. However, with increasing age, numerous underlying physiological changes occur, and the risk of chronic disease rises further. Whether these added years in elderly are being experiences in good health? Unfortunately, although there is strong evidence that older people are living longer, the quality of life during these extra years is not up to mark. For planning control and management and any strategy to provide proper health-care facilities for this group of people, the first step is laying down the premises by relevant situational analysis about the profile

of the geriatric population. Against this background, present study was conducted with the objectives: (1) To find out the magnitude and the trend of cases reporting in geriatric clinic at a tertiary care hospital over a period of eight years, and (2) To find out gender and seasonal differences of geriatric cases, if any.

MATERIAL AND METHODS

Study area and study design

The Union Territory of Chandigarh has a total population of 1055450 people including 97.25 per cent population living in urban areas. Only 06.1 percent of Chandigarh's total population is elderly (60 years and more) even after having registered an increase in elderly population as compared to 2001 when it was 05.1 percent (Census, 2011). Geriatric clinic at a tertiary care institution Government Medical College & Hospital (GMCH) Chandigarh has been managed daily by

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Department of Community Medicine since year 2012. A descriptive study was done based on secondary data for eight years (March 2008 to February 2016).

Data Collection

Secondary data was obtained from patient registers at Geriatric clinic. The data was collected from March 2008 to February 2016, dividing the patients according to gender (male & female) and seasons. The seasons were categorised as summer (March to June), rainy (July to October) and winter (November to February). Sub-analysis for age according to age groups (60-69 years, 70-79 years, and 80 years & above) was done for four years only i.e. initial two years (2008-2009 and 2009-2010) and last two years (2014-2015 and 2015-2016).

Statistical analysis

The data was entered in Microsoft Office Excel 2007. Statistical analysis was done with the help of Open Epi 2007. Descriptive statistical analysis was represented through frequency and percentages. Chi square test was used as test of significance to finding out any gender differences and seasonal variations as significant or otherwise, considering $p < 0.05$ as level of significance.

RESULTS

A total of 129 087 elderly patients reported to geriatric clinic during eight years (Table 1). Majority of them were male (67 033, 51.9% *vs.* 62054, 48.1% females).

According to season, maximum elderly (45 824, 35.5%) were reported during summer followed by rainy (44 241, 34.3%) and the least in winter (39 022, 30.2%). These seasonal variations shown indefinite trend with statistically significant difference during years 2008-2009 (p=0.00), 2009-2010 (p=0.00), 2011-2012 (p=0.04), 2012-2013 (p=0.02), 2014-2015 (p=0.00) and overall (p=0.00). According to gender, between the years 2008-2009 to 2014-2015, more number of male geriatric cases reported in the clinic with the ratio of male: female was more than one (range 1.03 – 1.23). However, in the year 2015-2016 more females were reported, the ratio of male: female was 0.97. No significant difference was found in reporting of patients according to gender (p=0.69).On sub-analysis of patients according to age groups, majority (64.9%)of patients belonged to age group 60-69 years. There was an indefinite trend in reporting of patients to geriatric clinic, with a significant drop in number of patients from the year 2011-2012 (20 316 cases) to the year 2012-2013 (12 989 cases) (p=0.00) as shown in Fig. 1. Thereafter, there was significant rise in number of patients reported at geriatric clinic every year from 2012-2013 onwards. Male patients reported mostly during summer season (52.4%) whereas female patients reported mostly during rainy season (48.7%). These seasonal variations according to gender were found to be statistically significant (p=0.00). Overall, less proportion of females reported to geriatric clinic during winter season (female: male ratio being 0.91). However, increasing trend was observed from 2008-2009 (F:M = 0.81) to 2015-2016 (F:M=1.04) with dip in 2012-2013 (F:M=0.84) as shown in Fig. 2. The patients in the age group of 60-69 years reported more during all seasons as compare to patients in other age groups, and this difference was found to be statistically significant (p=0.00).

Table 1. Distribution of patients according to season and gender

Year	Season	Male N (%)	Female N (%)	Total N (%)	Chi-square; p
2008-2009	Summer	2954(34.8)	2760(35.8)	5714(35.4)	19.2; 0.00*
	Rainy	2812(33.1)	2658(34.5)	5470(33.8)	
	Winter	2812(32.0)	2278 (29.6)	5090(30.9)	
	Total	8578(100)	7696(100)	16274(100)	
2009-2010	Summer	2779(33.8)	2597 (34.7)	5376(34.4)	11.1; 0.00*
	Rainy	2736(33.3)	2586 (34.7)	5322(34.0)	
	Winter	2693 (32.8)	2257 (30.3)	4950(31.6)	
	Total	8208(100)	7440(100)	15648(100)	
2010-2011	Summer	3485(36.6)	3128 (35.9)	6613(36.3)	01.2;
	Rainy	3080(32.3)	2877 (33.0)	5957(32.7)	0.53
	Winter	2944(30.9)	2707 (31.0)	5651(31.0)	
	Total	9509(100)	8712(100)	18221(100)	
2011-2012	Summer	3530(33.1)	3071(31.8)	6601(32.5)	06.5; 0.04*
	Rainy	3829(35.9)	3454 (35.7)	7283(35.8)	
	Winter	3297(30.9)	3135 (32.4)	6432(31.7)	
	Total	10656(100)	9660(100)	20316(100)	
2012-2013	Summer	2563(37.7)	2390 (38.6)	4953(38.1)	08.1; 0.02*
	Rainy	2355(36.6)	2224 (35.9)	4579(35.3)	
	Winter	1881(27.6)	1576 (25.4)	3457(26.6)	
	Total	6799(100)	6190(100)	12989(100)	
2013-2014	Summer	2712(38.3)	2529(37.8)	5241(38.8)	01.0;
	Rainy	2328(32.9)	2169 (32.5)	4497(32.4)	0.60
	Winter	2029(28.7)	1965 (29.4)	3994(28.8)	
	Total	7069(100)	6663(100)	13732(100)	
2014-2015	Summer	2886(34.6)	2438 (32.1)	5324(33.4)	12.0; 0.00*
	Rainy	2800(33.6)	2692 (35.4)	5492(34.5)	
	Winter	2647(31.7)	2459 (32.4)	5106(32.1)	
	Total	8333(100)	7589(100)	15922(100)	
2015-2016	Summer	3000(38.0)	3002 (37.0)	6002(37.5)	01.9;
	Rainy	2748(34.8)	2893(35.6)	5641(35.2)	0.38
	Winter	2133(27.0)	2209(27.2)	4342(27.1)	
	Total	7881(100)	8104(100)	15985(100)	
Overall (2008-2016)	Summer	23909(35.7)	21915(35.3)	45824(35.5)	11.6; 0.00*
	Rainy	22688(33.8)	21553(34.7)	44241(34.2)	
	Winter	20436(30.5)	18586(29.9)	39022(30.1)	
	Total	67033(100)	62054(100)	129087(100)	
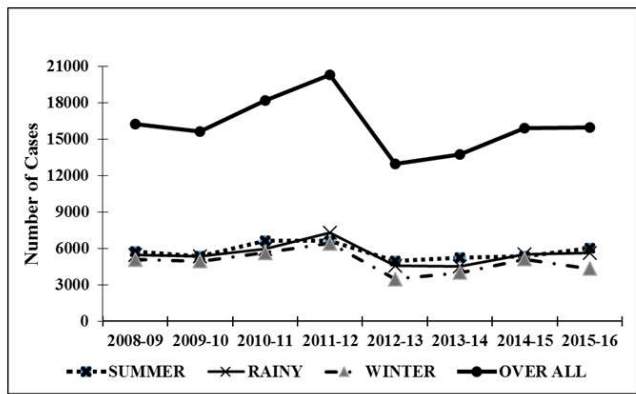
Fig. 1. Seasonal variations in attendance of geriatric patients during 2008–2016 in Chandigarh [N = 129 087; p (2008-2009 *vs.* 2009-2010): 0.37; p (2009-2010 *vs.* 2010-2011): 0.00; p (2010-2011 *vs.* 2011-2012): 0.00; p (2011-2012 *vs.* 2012-2013): 0.00; p (2012-2013 *vs.* 2013-2014): 0.00; p (2013-2014 *vs.* 2014-2015): 0.00; p (2014-2015 *vs.* 2015-2016): 0.00;p (Overall): 0.00]
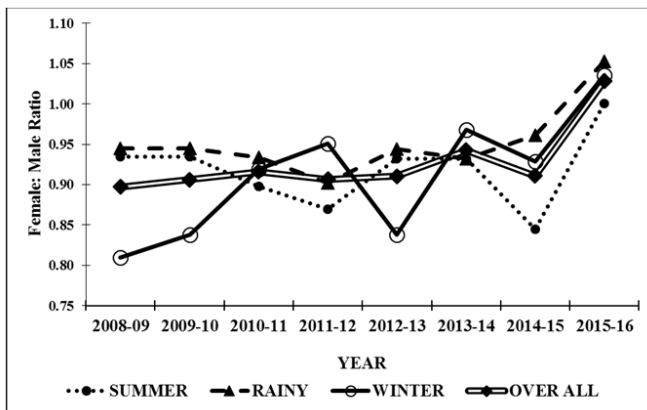
Fig. 2. Seasonal variations in Female: Male Ratio of geriatric patients during 2008–2016 in Chandigarh [N = 129 087; p (overall) = 0.00]

DISCUSSION

More male patients reported than females in present study (51.9% vs. 48.1%). Similar findings were reported in other studies where male vs female percentages were seen as 66.0% *vs.* 34.0% in Kuppam, Andhra Pradesh (Reddy *et al.*, 2013) ,65.9% *vs.* 34.1% in Mangalore (Narayan and Chandrashekhar, 2009), 65.2% *vs.* 34.8% in AIIMS, New Delhi (Dey *et al.*, 2001), 62.1% *vs.* 37.9% in Dehradun (Kishore *et al.*, 2007), 54.2% *vs.* 45.8% in Kolkata (Biswas *et al.*, 2013), 50.3% *vs.* 49.7% in Allahabad (Mohapatra *et al.*, 2011) and 57.14% *vs.* 42.86% in Kurnool Andhra Pradesh (Cynthia, 2015). This observation is contrary to study conducted in the community from same department in Chandigarh which demonstrated a significantly higher morbidity per person in females (Swami *et al.*, 2002). Thus the finding of high male preponderance in geriatric clinic indicates that even in the city like Chandigarh which is having very good socio economic status and high literacy rates, women need empowerment. To find out the reason we went into further detail by segregating the elderly into three age groups, 60-69 years, 70-79 years and ≥ 80 years. This demonstrated that male's predominance was observed among elderly aged 70 years and above where as in the age group of 60-69 years, female predominance was observed. Overall, male: female ratio observed was 1.08. Male to female ratio were 0.90, 1.49 and 1.52 in the age group of 60-69 years,

70-79 years and ≥ 80 years, respectively. Moreover, a relatively higher proportion of females reported in the year 2015-2016, the ratio of male: female was 0.97 in contrast to ratio more than one during earlier years (2008-2009 to 2014-2015). It was probably due to the fact that during year 2015-2016, both the physicians managing geriatric clinic were females who could understand the problems of females and hence counsel them in a better way. This may be considered as indirect way of women empowerment by inculcating motivation in them. Thus it becomes important that to draw any inference of gender predominance, a very high precaution should be exercised.

Age wise distribution of elderly in present study demonstrated that majority (64.9%) of elderly patients were in the age group of 60-69 years. Similar finding was seen in other studies where this percentage varied from 59.8% to 69.3% (Dey *et al.*, 2001, Kishore *et al.*, 2007, Mohapatra *et al.*, 2011, Biswas *et al.*, 2013, Sehgal *et al.*, 2016). There were 28.2% patients in the age group 70-79 years as found in different studies where this percentage varied from 21.6% to 46.0% (Dey *et al.*, 2001, Mohapatra *et al.*, 2011, Reddy *et al.*, 2013). Least patients (06.7%) were in the age group of 80 years and above whereas this percentage varied from as low as 05.8% to 16.0% in different studies (Dey *et al.*, 2001, Mohapatra *et al.*, 2011, Reddy *et al.*,2013), demonstrating a very high variation of age group based elderly at different places. The sudden drop from the year 2011-2012 (20 316 cases) to the year 2012-2013 (12 989 cases) was probably due to the handing over the charge of Geriatric Clinic to the Department of Community Medicine from the Department of General Medicine since the population of Chandigarh is highly literate (literacy rate of 86.43%) and can to a great extent appreciates the clinical acumen capability in between the above mentioned specialities. Yet from 2012-2013 year onward, the Department of Community Medicine could clearly demonstrate a better dealing with the patients because from that year onwards there was significant increase in number of elderly attending the clinic till the year 2015-2016. This speaks a lot about the fact that patients (especially elderly) need something more in addition to the clinical acumen.

Conclusion

The gender of elderly, type of season and preference for female physicians by female geriatric patients, effects the reporting by elderly patients in geriatric clinic. These findings enhance understanding of the problems among elderly. Thus, it will help in improving overall planning and management of health care of elderly in health institutions.

REFRENCES

Biswas, S., Manna, N., Pandit, D., Datta, M., Baur, B., Chatterjee, S. and Mundle, M. 2013. Physical Morbidity and Quality of Life among Geriatrics-An Experience from a tertiary Hospital. *IOSR J Dental Medical Sci*; 6(3):43-6.

Census of India. Ministry of Home Affairs, Government of India. New Delhi, India. Available from: http://www. censusindia.gov.in/vital_statistics/srs_report/9chap%202% 20-%202011.pdf (Accessed 17 May 2016).

Cynthia, Subhaprada, S. 2015. A Cross-Sectional Study of Morbidity Pattern among Geriatric Patients Attending Outpatient Department of a Primary Health Center,

Kurnool, Andhra Pradesh. *Int J Current Med Applied Sci*; 6(1):39-43.

Dey, A.B., Soneja, S., Nagarkar, K.M. and Jhingan, H. 2001. Evaluation of the health and functional status of older Indians as a prelude to the development of a health programme. *Natl Med J India*; 14(3):135-8.

Kishore, S., Juyal, R., Semwal, J. and Chandra, R. 2007. Morbidity profile of elderly persons. *JK Sci*; 9(2):87-9.

Mohapatra, A., Handoo, S.K., Gambhir, I.S. and Mohapatra, S.C. 2011. A study of non-communicable morbidity pattern in geriatric patients attending a referral railway hospital in Allahabad, Uttar Pradesh. *Natl J Community Med*; 2(2):191-5.

Narayan, V. and Chandrashekar, R. 2013. Morbidity pattern among the elderly population in a south Indian tertiary care institution: Analysis of a retrospective study. *Indian J Res Pharmacy Biotechnology*; 1(5):744-7.

Reddy, A.P.K., Suresh, R., Krishnamurthy, R.S. and Reddy, Y.J.V. 2016. A clinical profile of geriatric patients in medical wards at rural tertiary care hospital in South India. *J Clin Sci Res*; 5:101-4.

Sehgal, R.K., Garg, R., Anand, S., Dhot, P.S. and Singhal, P. 2016. A study of the morbidity profile of geriatric patients in rural areas of Ghaziabad, Uttar Pradesh. *Int J Med Sci Public Health*; 5(2): 176-80.

Swami, H.M., Bhatia, V., Dutt, R. and Bhatia, S.P.S. 2002. A Community Based Study of the Morbidity Profile among the Elderly in Chandigarh, India. *Bahrain Med Bull*; 24(1):13-6.

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