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Original Research Article

A Comparative Study of Health Profile and Depression amongst Elderly Residing in the Family Settings and in the Old Age Home

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Abstract: India is in the state of demographic transition. Number of elderly people is ever rising while question about there care is becoming complicated due to changing family structure and emergence of old age homes is one of its byproduct. The objectives are to compare the morbidity profile among elderly population residing in community and old age homes of Pune city and to compare the prevalence of depression among elderly population residing in community and old age homes of Pune city. A cross sectional study was conducted among elderly in one of the selected municipal corporation block and three old age homes of Pune city. The study was carried out from 1st September 2012 to 31st August 2014. Data were collected by questioning study participants with the help of pre-structured and pre-tested proforma. Data on health problems was collected by clinical examination, previous history of illness and presenting symptoms. To assess the prevalence of depression Major Depression Inventory(MDI) tool was used. Data analysis were done using SPSS 19 Statistical package. Out of 200 elderly, 100(50%) each were males and females. There were 66 males and 34 females in community group, however 34 males and 66 females were found in old age homes. In the present study out of 200 study subjects majority 186(93%) belonged to hindu religion. In the study 86.55% (173/200) participants were literate and remaining 13.5% (27/200) were illiterate in all elderly. The difference between two groups with respect to marital status of elderly was found to be statistically significant ($p<0.001$). Hypertension was the commonest morbidity found in 109(54.5%) elderly, followed by anaemia and diabetes mellitus in 69(34.5%) and 39(19.5%) respectively. Statistically significant difference was observed between two groups for diabetes mellitus, hearing problems and IHD (p-value <0.05). Statistically no significant (p-value = 0.686) difference was observed between two groups regarding level of depression. Elders need to be educated regarding their health problems. We need to strengthen geriatric health care services, social support by people, so that depression can be reduced which will support to the well-being and quality of life of eldery.
Keywords: Elderly, Community, Old age home, Morbidity Profile, Depression

INTRODUCTION

"Forty is the old age of youth; fifty is youth of old age."- a French meaning that natural process of waxing and waning of the body ageing which start at very young age but is visible only in old age [1]. India is in a phase of demographic evolution. There has been a sharp increase in the number of elderly persons between 1991 and 2001. It has been projected that by the year 2050, the number of elderly people would rise to about 324 million. India has thus acquired the label of "an ageing nation" [2]. In India the size of the elderly population, i.e persons above age of 60 years is fast growing. As per the census of 2011, elderly population constitutes 8% of the population of India. In rural areas, around 8.1% of the population is above the age of 60 years, while in urban areas 7.9% of the population is above age of 60 years [3].

As the age advances there is increased morbidity and functional loss. Also presence of varying

life events, greatly impact on one's psychological status, making them more prone to depression. Thirty four studies have reported prevalence of depression in the community-dwelling elderly with widely varying findings (0.4-35%). Furthermore, most of these studies were performed in developed countries.[4] Depression is a common public health issue with the increasing life expectancy worldwide and depression is associated with morbidity as well as disability among the elderly [5]. From the morbidity point of view, at least 50% of the elderly in India have chronic diseases. This poses a greater responsibility on the health services especially in developing countries like India where there is a greater strain on available health infrastructure [6].

This segment of population is more vulnerable to health related problems including mental health problems. Various prevalence studies have reported mental health problems among older adults to be very higher than other age groups [7].

BACKGROUND

The elderly population is large in general and growing due to advancement of health care education. In India "aged" population is the second largest in the world. These populations are thought to be at greater risk for depression. The phenomenon of population ageing is already a major social and health problem in the developed countries.

OBJECTIVES

1. To compare the morbidity profile among elderly population residing in community and old age homes of Pune city.
2. To compare the prevalence of depression among elderly population residing in community and old age homes of Pune city.

MATERIALS AND METHODS

A cross sectional study was conducted among elderly in one of the selected municipal corporation block and three old age homes of Pune city. The study was carried out from 1st September 2012 to 31st August 2014.

Sample Size Estimation:

The sample size was estimated by following formula [8]

$$n = \frac{4pq}{L^2}$$

Where p = prevalence of disease (cataract) in majority of elderly [2] = 68%
q = 100 - p i.e. = 32% and
L = Allowable error = 10% of p= 6.8

$$\text{Sample size (n)} = \frac{4X68X32}{6.8X6.8} = 188.23 \simeq 189$$

For current study estimated sample size was rounded to 200 and divided into two groups as mentioned above i.e. 100 in each group.

SELECTION OF STUDY POPULATION FROM URBAN COMMUNITY

One block was randomly selected from 74 blocks of Pune city. From this one block, elderly people were selected from houses till required sample size of 100 was reached.

Inclusion Criteria

Persons of 60 years and above, At least 6 months duration of stay in selected block and those who are willing to participate in study.

Exclusion Criteria

Critically ill bed ridden elderly patient, elderly who don't have supporting document for age proof.

Selection of study population from Old Age Homes

When decided to conduct present study, there were 21 old age homes in Pune city. The study population was selected from 3 randomly selected old age homes out of 14, which shelter both males and females.

Data collection

Collection of information from elderly in urban community

From the randomly selected single block one house was identified randomly to start the study. The immediate next house or nearby house visit was made to find elderly study subject in selected area. This procedure was repeated till desirable sample size of 100 was reached. The nature, purpose and objectives of the study were explained to the elderly chosen for the study and confidentiality was assured. During visit every effort was taken to relax the elders. After taking written informed consent the elderly was interviewed using the pretested proforma. Interview and examination of female participants was carried out in presence of female attendant. It took around 45 min to examine one participant.

Depression of study population was assessed by using WHO -Five Well Being Index with Major Depression Inventory.

Collection of information from inmates of old age homes

A prior permission was obtained from concerned authorities of old age homes to conduct the study after explaining the object and method to them. The nature, purpose and objectives of the study were explained to the inmates of old age homes and confidentiality was assured. After taking written informed consent the inmates were examined in a separate room. The same procedure was followed for the collection of information and examination of inmates of old age homes as used for elderly in urban community.

WHO Five Well Being Index[9]

The WHO-5 Wellbeing Index is a brief questionnaire which involves five items related to quality of life. The WHO-5 Wellbeing Index was administered to all elderly to find well being score. The WHO-5 Wellbeing Index was translated to Marathi language and validated for the participants who do not understand English. The 5 items related to quality of life were asked to the subjects. Responses for each of the five statements which were closest to how he or she has been feeling over the last 2 weeks were asked to note down in the appropriate boxes. The raw score was calculated by adding the figures of the five answers given by the respondents. The raw score ranges from 0 to 25, Zero representing worst possible quality of life and 25 representing best possible quality of life. The raw score below 13 indicated poor well being. Major Depression Inventory (ICD 10) was administered subsequently to those subjects whose score was below 13 for diagnosing depression.

Major Depression Inventory[10](ICD-10)

Major Depression Inventory contains 10 items reflecting the presence or absence of depressive symptoms according to ICD-10. This inventory was used to evaluate the elderly suffering from depression. The scale was also translated to Marathi language and validated for the participants who do not understand English.

Scoring

The scoring was done on the basis of the patient answers to the Major Depression Inventory according to ICD-10.

MDI total score of 20 to 24– Mild depression
MDI total score of 25 to 29– Moderate depression
MDI total score of 30 or more – Severe depression

Data Analysis

The collected data was filled in Microsoft excel sheet. The data is presented in suitable tabular and graphical formats. Descriptive statistics like mean and standard deviation were used to summarize quantitative variables while percentages and proportions were used to summarize categorical variables.

Associations between two categorical variables were analyzed by using Chi -Square test and Fisher's exact test. Data was analyzed using SPSS 19 statistical package. P -value < 0.05 was considered to be statistically significant.

RESULTS

The present cross sectional study was conducted among elderly in one of randomly selected Municipal Corporation block and three old age homes of Pune city to assess the depression amongst them.

Table 1 :Age and gender wise distribution of elderly in community and old age homes.

Sr. No.		Community		Total	Old age homes		Total	Total
		Male	Female		Male	Female		
1	60 - 69	45	26	71	19	27	46	117
2	70 - 79	19	6	25	11	22	33	58
3	80 - 89	2	2	4	4	14	18	22
4	≥ 90	0	0	0	0	3	3	3
Total		**66**	**34**	**100**	**34**	**66**	**100**	**200**

From this table it is observed that, out of 200 elderly, 100(50%) each were males and females. There were 66 males and 34 females in community group, however 34 males and 66 females were found in old age homes. The male elderly were nearly double to that of females and exactly opposite finding were observed in old age homes.

In the study M: F ratio was found to be 1.94:1 and 0.52:1for community elderly and for old age home respectively. In the study, for old age home nearly half i.e 46% elderly were observed in group of 60-69 years followed by one third i.e. 33 elderly in 70-79 years age group. For community group 71% elderly were observed in group of 60-69 years followed by 25% in group of 70-79 years. Only 3 females were observed ≥90 years and all were from old age homes. Mean age (S.D.) of community elderly in present study was noted to be 67.82 (5.84) years. Mean age (S.D.) for old age homes elderly was found to be 73.01(8.93) years.

Out of 200 study subjects majority 186(93%) belonged to Hindu religion. Of these 186 elderly 93 each were from community and old age homes. Statistically no significant difference(since, p-value = 0.460 < 0.05 l.o.s) was observed between religion and elderly from community old age homes. In the study 86.55% (173/200) participants were literate and remaining 13.5% (27/200) were illiterate in all elderly. Of 86.55% of all literate elderly 32% (64/200) studied up to primary school level, 19% each were studied up to secondary and higher secondary level. Only 4(2%) elderly were studied up to post graduate level and of these 4 elderly, one female was from old age homes and remaining 3 were males from community elderly. No one in present study in both groups had any professional degree or diploma. Nearly equal numbers of elderly were observed in both groups with respect to their educational status.

In this study more than two third of elderly from both the groups i.e. 68.5% (137/200) were either married or remarried while remaining 34.5% elderly were contributed to unmarried, widowed/ widowers and divorced category.

Interestingly all elderly in community were either married or remarried. However in old age homes more than half elderly i.e. 63%(63/100) contributed to unmarried, widowed/widowers and divorced category. No one either from community or old age homes were found to be separated. For statistical analysis two groups were made. One is 'married category' including married and remarried elderly. However another 'Singles' category included unmarried, widows/widowers and divorced elderly. Fisher's exact test was applied to see the difference between two groups with respect to marital status of elderly. The difference was found to be statistically significant (p<0.001).

Table 2 :Distribution of morbidity conditions among elderly of community and old age homes.

Sr. No.	Morbidities	Community			Old age homes			Total	Chi-square value	P-value
		Male	Female	Total	Male	Female	Total			
1	Hypertension	32	19	51	14	44	58	109	0.988	0.320
2	Anemia	12	16	28	13	28	41	69	3.73	0.053
3	Hearing problems	11	5	16	18	13	31	47	6.25	0.012*
4	Diabetes Mellitus	19	6	25	3	11	14	39	3.85	0.049*
5	Ischemic heart disease	8	5	13	3	1	4	17	4.11	0.042*
6	Visual impairment /Cataract	4	2	6	6	3	9	15	0.648	0.421
7	Joint pain/Arthritis	3	3	6	3	5	8	14	0.307	0.579
8	Other*	7	2	9	12	5	17	26	0.155	0.694

*Other includes following morbidities – Epilepsy-5, Hernia-4, Hemiplagia-4, Hemorrhoids-3, Renal stone-3, Peptic Ulser-2, Ca Bladder-1, Spondilytis-1, Tuberculosis-1, Hepatitis(Alcoholic)-1, Asthma-1

Fisher's exact test used.

*Statistically significant difference was observed between two groups for diabetes mellitus (p-value = 0.049 < 0.05 l.o.s), hearing problems (p-value = 0.012; significant) and IHD (p-value = 0.042, significant).

In present study various morbidities were diagnosed by investigator on the basis of previous history of any illness, recent laboratory reports provided by study subjects, presenting symptoms, use of Major Depression Inventory (MDI) score and thorough physical examination.

Hypertension was the commonest morbidity found in 109 (54.5%) elderly, out of which 51were from community and 58 were from old age homes. This was followed by anaemia in 69(34.5%) elderly, out of which 28 were from community and 41 from old age

homes. More females were suffering from anaemia in both groups as compared to males. This morbidity was reflected by presenting symptoms of fatigue and weakness which was found in same number of elderly i.e. 69(34.5%) from both study groups.

Hearing problem was observed in nearly one fourth of elderly i.e. in 47(23.5%); of which 16 were from community and remaining 31 were from old age homes. Other common morbidities observed were diabetes mellitus in 39(19.5%), ischemic heart disease (IHD) in 17(8.5%), visual impairment/cataract in 15(7.5%) and joint pain/ arthritis in 14(7%) of elderly from both the groups. Epilepsy was found in 5(2.5%) elderly, out of which 4(2 males and 2 females) were from old age homes.Certain morbidities like hernia, hemiplegia, hemorrhoids and renal stones were reported in very less number of elderly and all were taking treatment for diagnosed condition.

Common morbidities revealed amongst community elderly in order of frequency were hypertension (51%), anaemia (28%), diabetes mellitus (25%), hearing problems (16%),ischemic heart disease (13%), joint pain /arthritis and visual impairment /cataract with equal prevalence of 6% each.

Common morbidities revealed among elderly of old age homes in order of frequency were hypertension (58%), anaemia (41%), hearing problems (31%), diabetes mellitus (14%), visual impairment /cataract (9%).Equal prevalence of 4% was observed for ischaemic heart disease, hernia and hemiplegia.

Table 3 : Distribution of elderly according to Major Depression Inventory (MDI) score in community and old age homes

Sr. No.	MDI	Community			Old age homes			Total
		Male	Female	Total	Male	Female	Total	
1	20 - 24 (Mild)	6	3	9	3	4	7	16
2	25 - 29 (Moderate)	2	2	4	2	3	5	9
3	≥ 30 (Severe)	2	0	2	0	3	3	5
Total		**10**	**5**	**15**	**5**	**10**	**15**	**30**

The MDI (ICD-10) was administered to only 30 (15%) elderly who had WHO-5 well being index score of less than 13. Of 30 elderly 15 each were from community and old age homes. Prevalence of depression in each group was found to be 15%. Mild depression (MDI score 20-24) was observed in more than half of elderly i.e. 16(53.3%).Remaining 14(46.7%) elderly had moderate to severe depression (MDI score 25-30 and ≥ 30).Amongst 15 depressed elderly in each group, 9(60%) community elderly had mild depression as against 7 (46.7%) from old age homes. Moderate to severe depression was observed among 4 males and 2 females of community as against 2 males and 6 females from old age homes. Statistically no significant (p-value = 0.686 > 0.05 l.o.s) difference was observed between two groups regarding level of depression.

DISCUSSION

The salient observations of the present study are discussed in this section. In the present study, for old age home nearly half i.e 46% elderly were observed in group of 60-69 years followed by one third i.e. 33 elderly in 70-79 years age group. For community group 71% elderly were observed in group of 60-69 years followed by 25% in group of 70-79 years. Study conducted by M Anitha Rani *et al* [11] reported largest population of elderly 38% was in age group of 60-69 years followed by 36.2 % in age group of 70-79 years. Tiwari SC *et al* [7] reported more number of elderly i.e. 57 % in age group of 70-79 years than in age group of 60-69 years i.e. 27.5%. These findings are completely in contrast to elderly from old age homes in present study. Banker K *et al.* [1] reported same percentage of inmates of geriatric homes i.e. 46.4% in the age group of 60-70 years as against 46% in present study. However male to female ratio was reported to be opposite to that of present study i.e. 1:1.18. In the present study Mean age (S.D.) of community elderly was noted to be 67.82 (5.84) years. Singh A. and Mishra N [12] also noted similar mean age of 67 years in housing societies of Delhi. Mean age (S.D.) for old age homes elderly was found to be 73.01(8.93) years. Similar mean age of 73.67 years was noted by Chalise HN [5].

Present study reported 13% of community elderly were illiterate. In community nearly twice or more number of illiterate were observed by Bhatt R [6] However in old age homes, M Anitha Rani *et al* [11]

found marginally more number of illiterates as compared to elderly in present study (18.3% Vs.14%). More than twice number of illiterates were noted among inhabitants of old age homes by Tiwari SC *et al*. [7]. In support to current study findings in community, majority of the study population was married as compared to other categories of marital status in the study carried out by RP Thakur *et al* [13].Considering marital status of elderly from old age homes M Anita Rani *et al* [11] noted 26.7% (56/202) elderly were unmarried from 9 old age homes. This finding was similar to current study finding of 25% unmarried elderly. As compared to present study findings amongst elderly of old age homes; Tiwari SC *et al*. [7]and Banker K *et al* [1] mentioned completely different findings regarding marital status categories.

Hypertension was the commonest morbidity found in 109 (54.5%) elderly,this was followed by anaemia in 69(34.5%) elderly. Study conducted by Thakur RP [13] reported common morbidities were arthritis (44.7%), hypertension(30.7%), cataract(29.2%) and diabetes mellitus(12%) as observed in present study with more or less number. Bhatt R *et al* [6] and Prakash R *et al* [14] reported hypertension was the commonest morbidity which is similar to the present study. In the study conducted by Pandve HT and Deshmukh P [2], hypertension was one of the prevalent morbidity and prevalence of hypertension was 27% . However prevalence of hypertension in present study was found to be 5%. Health problems reported by Ramesh [15] amongst 120 elderly were BP/Sugar (43.3%), joint pain (8.3%), eye/hearing problems (5%) and others (16.7%). Present study also reported BP/Sugar problems in majority of elderly from old age homes i.e.72% (58% hypertension and 14% diabetes mellitus). M. Anitha Rani *et al*. [11] reported common health problems were hypertension (39.5%), hearing (17.8%), vision (35.1%) and GIT (25.2%). Present study also reported that hypertension (58%) was the commonest morbidity. Other common health problems reported by them were oral (37.6%), musculoskeletal (34.8%). These problems were not reported by current study. As per study conducted by Banker K *et al*. [1]the common morbidities were osteoarthritis (54.9%), hypertension (54.2%), cataract (16%), diabetes mellitus(14.9%), deafness (12.5%) and bronchial asthma (7.9%). In present study nearly equal prevalence of hypertension (58%) and diabetes mellitus (14%) was found as compared to above study findings.

Prevalence of depression in each group was found to be 15% in the present study. Mild depression was observed in more than half of elderly i.e. 16(53.3%).Remaining 14(46.7%) elderly had moderate to severe depression. Compare to the other study by Ranjan *et al* [4] amongst the depressed population 70.42% had mild depression and 29.58% had severe depression. Very high prevalence of depression was revealed by different authors in both groups of community and in old age homes elderly as compared to present study. Prevalence of depression was mentioned 52.3% and 57.8% in the study conducted by Thakur RP *et al* [13] and HomNathChalise *et al* [5] respectively.

CONCLUSION

Hypertension was the commonest morbidity followed by anaemia and diabetes mellitus. Elders need to be educated regarding their health problems. This study reflects the importance of delivery of care for better life in geriatric population. We need to strengthen geriatric health care services, social support by people, so that depression can be reduced which will support to the well-being and quality of life of elderly.

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