A Comparative Study of Activities of Daily Living (ADL) among Elderly Population Residing in Community Dwellings and Old Age Homes

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Original Research Article

Abstract: The population prevalence of older people has been growing worldwide. Quality of life among older people is a significant public health concern which primarily dependent on the activities of daily living. To compare the status of activities of daily living 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. Katz Activities of Daily Living scale was used to evaluate elderly for ability to perform essential life functions. Out of 200 elderly, 100 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 study 86.55% participants were literate and remaining 13.5% were illiterate in all elderly. Out of 200 elderly, 189 (94.5%) were functionally able and remaining 11(5.5%) were dependent for activities of daily living. Large number of elderly was functionally able. Continuous care and monitoring of activities of daily living is important to maintain standard of living among elderly population.
Keywords: Comparison, Elderly, Community, Old age homes, Katz Activities of Daily Living.

INTRODUCTION

The world's population is ageing: virtually every country in the world is experiencing growth in the number and proportion of older persons in their population. Population ageing is poised to become one of the most significant social transformations of the twenty-first century.

According to data from World population Prospects : the 2017 Revision, the number of older persons those aged 60 years or over is expected to more than double by 2050 and to more than triple by 2100, rising from 962 million globally in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100. Globally, population aged 60 or over is growing faster than all younger age groups. [1]

The elderly should be entitled to recognition and support by the family, community and the state so as to lead a valuable life with dignity and sustain their healthy and living standards as high as possible. [2] Quality of life can be one indicator of healthy life in the older age as World health Organization defined quality of life as "an individual's perception of life in the context of culture and value system in which he or she lives and in relation to his or her goals, expectations, standards and concerns. [3] Activities of daily living (ADLs) is the term used to refer to the daily activities of self- care within the place of residence of an individual, the outdoor environments, or both. Health professionals refer to the ability or the inability to perform the ADLs as an important measurement of functional status of an individual. [4]

The challenge in 21st Century is to delay the onset of disability and ensure optimal quality of life for older people. The World Health Day theme of the year 2012 [5] was also related to health issues of elderly population. This study was conducted with main objective of comparing activities of daily living of

elderly population residing in urban community and old age homes.

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 calculated by following formula [6].

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

Where p = prevalence of disease (cataract) in majority of elderly[7] = 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.

Selection of study population from Old Age Homes

The study population was selected from 3 randomly selected old age homes from Pune city, which shelter both males and females.

Inclusion Criteria

Persons of 60 years and above and those who are willing to participate in study. Especially the study subjects from community who were residing in the particular block for more than six months period were included in the study.

Exclusion Criteria

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

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 and their family members also 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.

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.

Katz Activities of Daily Living Scale [8]

This scale was used to evaluate elderly for ability to perform six essential life functions- Bathing, Dressing, Toileting, Transferring, Continence and Feeding. For this purpose, elderly were asked whether or not they could perform the six functions. The value '0' was assigned to the response: 'No' (Dependent) and '1' to the response: 'Yes' (Independent).

Total score placed the elderly into one of the following three groups:
a. Functionally able – 5 to 6
b. Moderately ADL dependent – 3 to 4
c. Severely ADL dependent – 1 to 2

Statistical Analysis

The analysis of data involved descriptive statistics such as mean, standard deviation, percentage and frequency. To test the association between two categorical variables, Fisher's exact test was used. P - value < 0.05 was considered to be statistically significant.

Ethical considerations

The study was conducted according to the Declaration of Helsinki, the protocol was reviewed and approved by the independent ethics committee. Written informed consent was obtained from all study subjects

RESULTS

Total 200 study subjects were participated. Out of which 100 study subjects were residing in community dwellings and 100 were residing in Old age homes.

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

Sr. No.	Age group	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 table 1: 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 and for community group more than half i.e 71% elderly were observed in group of 60-69 years followed by one third i.e. 33% elderly for old age home and 25% elderly for community group were observed in 70-79 years age group. 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 and 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. 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: Distributions of elderly according to Activities of Daily Living (ADL) score in community and old age homes.

Sr. No.	ADL score	Community			Old age homes			Total
		Male	Female	Total	Male	Female	Total	
1	1 - 2 (Severely dependent)	0	0	0	2	4	6	6
2	3 - 4 (Moderately dependent)	1	1	2	1	2	3	5
3	5 - 6 (Functionally able)	65	33	98	31	60	91	189
Total		**66**	**34**	**100**	**34**	**66**	**100**	**200**

Above table showed distribution of elderly according to Activities of Daily Living (ADL) score in community and old age homes. Out of 200 elderly, 189(94.5%) were functionally able and remaining 11(5.5%) were ADL dependent. In community group majority of elderly 98 were functionally able, followed by 2 elderly with moderately ADL dependent and there was no severely ADL dependent elderly. In old age

homes group majority of elderly i.e. 91 were functionally able, followed by 6 elderly with severely ADL dependent and there were 3 moderately ADL dependent elderly. Statistically significant difference was observed in both the groups with respect to ADL score (Fisher's exact test value=6.59, df=2,p= 0.03).

DISCUSSION

In the study Mean age group of the population was 70.42 and majority(58.5%) of them belonged to the age group of 60-69 years. In the present study, for community group 71% elderly were observed in group of 60-69 years followed by 25% in group of 70-79 years. Whereas similar results were found in a study of activities of daily living of elderly in an urban community of North India conducted by Sekhon H et al. [4] where 56.7% elderly belonged to 60-69 age group followed by 38.8% in a group of 70-79 years more or less in number.In support to current study findings majority of the study population was married (68.5%) as compared to other categories of marital status in the study carried out by T Venkatarao et al [9] has showed 50%.

T Venkatarao *et al.* [9] carried cross sectional study among 974 elderly all aged above 60 years. The study was carried out in 30 villages of southern India. They reported prevalence of at least one restricted Activities of Daily Living (ADL) as 22%. Srinivasan K *et al.* [10] also reported prevalence of minimal level of disability of activities of daily living (ADL) as 27% in suburb of Bangluru.

Present study reported prevalence of at least one restricted activities of daily living (ADL) as 2% in community elderly. The same prevalence observed was more than 10 times more (22% & 27%) in the studies conducted by T Venkatarao *et al.*[9] and Srinivasan K *et al.*[10]

As per study conducted by Jadhao *et al.* in Nagpur amongst inmates of home for aged prevalence of ADL dependency was 21.02% among the inmates of home for aged. Dependency for activities of daily living increases with increase in age [11].

Conclusion and Recommendation: In the present study though majority of the elderly population was functionally able it is recommended that Municipal Corporation should start a 'Permanent Screening Centre' at each ward office for detection and treatment of chronic morbidities at the earliest. Special care can be provided through registered trained volunteers to all elderly at their home with restricted activities of daily living

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