

# Acute Illness episodes and Limitation of Daily Activity of Life in Geriatric population in Jaipur: A Period Prevalence 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 acute and chronic health problems which may lead to limitation daily activities of life. Study of acute and chronic health problems with limitation daily activities of life of this population is required to frame comprehensive policies to make ageing a comfortable experience. So this cross-sectional period prevalence 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 episodes of acute health problems within last one month and limitation daily activities of life within last years of this population 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. It can be concluded from 41.6% of elderly were having difficulty in performing activity of daily living and this difficulty was found more in females than males and in older ages. It was also revealed that 44.37 of elderly had one or more episodes of acute illness in last one month. These number of episodes of acute illness in last one month was found more in males and in older age groups.

**Key words-** Elderly, Geriatric, Acute Illness, Daily activities of Life.

## I. 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.<sup>1</sup> This “demographic time bomb” is nearing explosion in developed nations. Asia, including India, is not far behind.<sup>1</sup>

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).<sup>2</sup> 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).<sup>3</sup> 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).<sup>4</sup>

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).<sup>4</sup>

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 health problems of this population. Only then can we embark on framing comprehensive policies to make ageing a comfortable experience. So this study was conducted with the aim to study episodes of acute health problems within last one month and limitation daily activities of life within last years of this population of elderly residing in a metropolitan city.

## II. METHODOLOGY

A period prevalence cross-sectional study was conducted in department of Community Medicine of SMS Medical College, Jaipur Rajasthan India. After taking approval from Institutional Ethics committee, this community based cross sectional survey was conducted on 1620 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<sup>5</sup>. 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.

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       | Uniara 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                  |

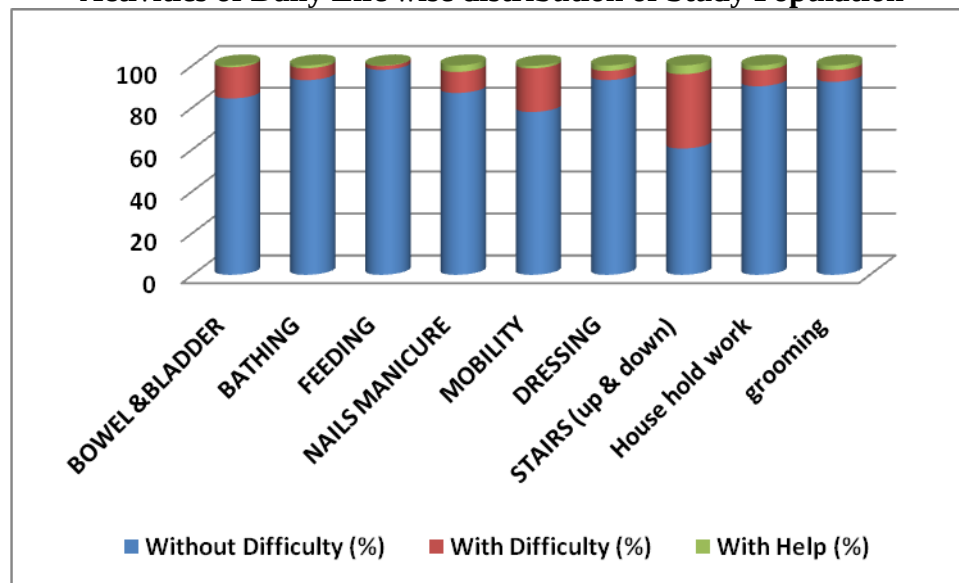
Data thus collected were compiled in the form of master chart in MS Excel 2007 worksheet. Parametric and Non Parametric statistical techniques were used with the help of statistical software Primer (version 6). 'p' value <0.05 was taken significant for inferences. Chi-Square Test was used to find associations.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

### III. RESULTS

Out of 1620 elderly, 53.08% of elderly were able to perform activity of daily living without difficulty and 41.60% with difficulty. Only 5.3% of elderly required help for activity of daily living.

Out of these elderly who feel difficulty in daily activities of life, majority i.e. 575 (35.49%) were having difficulty in climbing stairs up and down, 337 (20.8%) were having difficulty in mobility, 242 (14.94%) were having difficulty in bowl and bladder activates and 163 (10.06%) were having difficulty in nails manicure. Few other difficulties in daily activities of life was observed in bathing, feeding, dressing etc.(Figure 1).

**Figure 1**  
**Activities of Daily Life wise distribution of Study Population**



Eldest age group of study population i.e. 80 years and more were having highest number of those who required help for Activity of Daily Living (40.74%) while youngest age group i.e. 60-64 year age group had 62.29% elderly who were able to perform Activity of Daily Living. There was significant association ( $p < 0.001$ ) between age of elderly activity of daily living. As the age increases difficulty in ability to perform daily activities of life decreases. (Table 1)

**Table 1**  
**Association of Age with Activities of Daily Life wise in Study Population**

| Activity of Daily Life    | 60-64 Years<br>No. (%) | 65-69 Years<br>No. (%) | 70-74 Years<br>No. (%) | 75-79 Years<br>No. (%) | ≥80 Years<br>No. (%) | Total           |
|---------------------------|------------------------|------------------------|------------------------|------------------------|----------------------|-----------------|
| <b>Without Difficulty</b> | 413<br>(62.29%)        | 321 (56.32%)           | 60 (24.10%)            | 58 (69.05%)            | 8<br>(14.81%)        | 860<br>(53.08%) |
| <b>With Difficulty</b>    | 232<br>(34.99%)        | 241 (42.28%)           | 153 (61.45%)           | 24 (28.57%)            | 24<br>(44.44%)       | 674<br>(41.60%) |
| <b>With Help</b>          | 18<br>(2.71%)          | 8 (1.40%)              | 36 (14.46%)            | 2<br>(2.38%)           | 22<br>(40.74%)       | 86<br>(5.30%)   |
| <b>Total</b>              | 663<br>(100%)          | 570 (100%)             | 249 (100%)             | 84 (100%)              | 54<br>(100%)         | 1620<br>(100%)  |

**Chi-square = 297.279 with 8 degrees of freedom; P < 0.001**

Likewise, when association of difficulty in daily activities of life with sex was explored, it was found that 41.85% elderly females were perform Activity of Daily Living without difficulty while 54.28% were have difficulty and 3.86% had need manual help. In elderly males 64.85% were perform Activity of Daily Living without difficulty while 28.31% were have difficulty and 6.82% had need manual help. (Table 2)

**Table 2**  
**Association of Sex with Activities of Daily Life wise in Study Population**

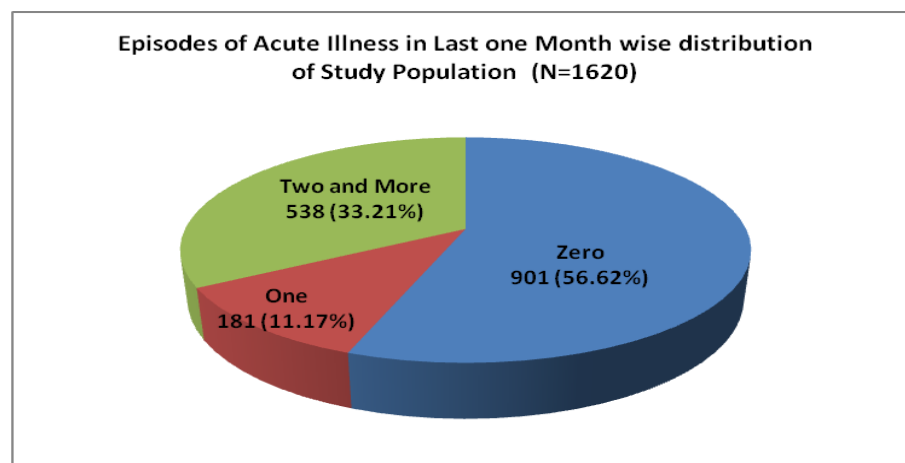
| Activity of Daily Living  | Male (N=791) | Female (N=829) | Total (N=1620) |
|---------------------------|--------------|----------------|----------------|
| <b>Without Difficulty</b> | 513 (64.85%) | 347 (41.85%)   | 860 (53.08%)   |
| <b>With Difficulty</b>    | 224(28.31%)  | 450 (54.28%)   | 674 (41.60%)   |
| <b>With Help</b>          | 54 (6.82%)   | 32 (3.86%)     | 86 (5.30%)     |
| <b>Total</b>              | 791 (100%)   | 829 (100%)     | 1620 (100%)    |

**Chi-square = 112.621 with 2 degrees of freedom; P < 0.001**

In last one month preceding the survey 11.17 % of the respondents were have one episode of acute illness while 33.20% were had two or more than two episodes. 55.61% elderly had no episodes of illness in last one month. (Figure 2)

Two and more illnesses were more often found in 75-79yrs (47.53%) followed by 80 and above (74.07%) age group. There was significant association ( $p < 0.001$ ) between age of elderly and acute illnesses. (Table 3)

**Figure 2**



**Table 3**  
**Association of Age with number of episodes of Acute Illness in last month in Study Population**

| No. of Episodes     | 60-64 Years No. (%) | 65-69 Years No. (%) | 70-74 Years No. (%) | 75-79 Years No. (%) | ≥80 Years No. (%) | Total        |
|---------------------|---------------------|---------------------|---------------------|---------------------|-------------------|--------------|
| <b>Zero</b>         | 395 (59.57%)        | 316 (55.43%)        | 156 (62.65%)        | 34 (40.47%)         | 00 (0.00%)        | 901 (55.61%) |
| <b>One</b>          | 101 (15.23%)        | 33 (5.18%)          | 23 (9.23%)          | 10 (11.90%)         | 14 (25.92%)       | 181 (11.17%) |
| <b>Two and More</b> | 167 (33.32%)        | 221 (38.76%)        | 70 (28.10%)         | 40 (47.53%)         | 40 (74.07%)       | 538 (33.20%) |
| <b>Total</b>        | 663 (100%)          | 570 (100%)          | 249 (100%)          | 84 (100%)           | 54 (100%)         | 1620 (100%)  |

**Chi-square = 103.664 with 6 degrees of freedom; P < 0.001**

Likewise, when association of number of episodes of Acute Illness in last month in elderly with sex was explored, it was found that proportion of males having two and more acute illnesses was more (37.54%) than female (29.07%). There was significant association ( $p < 0.001$ ) between sex of elderly and acute illnesses. (Table 4)

Table 4

**Association of Sex with number of episodes of Acute Illness in last month in Study Population**

| No. of Episodes       | Male (N=791) | Female (N=829) | Total (N=1620) |
|-----------------------|--------------|----------------|----------------|
| <b>Zero</b>           | 414 (52.33%) | 487 (58.74%)   | 901 (55.61%)   |
| <b>One</b>            | 80 (10.11%)  | 101 (12.18%)   | 181 (11.17%)   |
| <b>Two &amp; More</b> | 297 (37.54%) | 241 (29.07%)   | 538 (33.20%)   |
| <b>Total</b>          | 791 (100%)   | 829 (100%)     | 1620 (100%)    |

**Chi-square = 13.296 with 2 degrees of freedom; P < 0.001**

#### IV. DISCUSSION

In this present study, 53.08% of elderly were able to perform activity of daily living without difficulty and 41.60% with difficulty. Only 5.3% of elderly required help for activity of daily living. Majority of these elderly i.e. 575 (35.49%) were having difficulty in climbing stairs up and down, 337 (20.8%) were having difficulty in mobility, 242 (14.94%) were having difficulty in bowel and bladder activities and 163 (10.06%) were having difficulty in nails manicure. Few other difficulties in daily activities of life were observed in bathing, feeding, dressing etc. Findings of this present study were with some difference with Bhatia V et al<sup>5</sup> who noticed 2% of the subjects were unable to perform daily activity which may be due to differences in defining the difficulty or may be an aberration but were well in resonance with Ibrahim T Maurof<sup>1</sup> found prevalence of disability 5.5%, 5% and 8.6% and 8% to 11.3%.

It was also revealed from this study that as age increases the ability to perform activity of daily living also decreases. This may be due to the fact that with increase in age, episodes of acute and chronic diseases also increase leading to difficulty in performing activity of daily living. This fact was further supported with the observations of present study.

Likewise it was also revealed from this study that significantly more proportion of females were having difficulty in performing activity of daily living than males. This may be due to the fact that females were usually neglected in the family and in older age they face the problem of osteoporosis so they had more difficulty in performing activity of daily living than males.

In this study episodes of acute illness in last one month were also inquired where it was found that majority of the study population (44.37%) had one or more episodes of acute illness. Out of these 44.37% who had some kind of acute illness, 11.17% of the respondents were having one episode of acute illness while 33.20% had two or more than two episodes. This finding gets substantial support from a number of studies from India as well as abroad namely Valderrama et al<sup>6</sup>, K Joshi et al,<sup>7</sup> Ibrahim T Maurof et al<sup>1</sup>, S P S Bhatia et al.<sup>8</sup> All these studies found the prevalence of morbidity in elderly age group ranging from 78% to 96%.

It was also revealed from this study that two and more episodes of illnesses were found significantly more in 75 and above age group. There was significant association ( $p < 0.001$ ) between age of elderly and acute illnesses i.e. as age increases number of acute episodes also increases.

Likewise it was also revealed from this study that two and more episodes of illnesses were significantly more in males than females i.e. 37.54% v/s 29.07%.

Morbidity load was 2.67 illnesses per person in the present study which are commensurate with the findings by R. Shankar et al<sup>9</sup> (2.18 illnesses per person), Padma et al<sup>10</sup> (2.55 illnesses per person) and Sharma et al<sup>11</sup> (2.5 to 3.5 illness per person).

## V. CONCLUSION

It can be concluded from 41.6% of elderly were having difficulty in performing activity of daily living and this difficulty was found more in females than males and in older ages. About 50% of elderly had one or more episodes of acute illness in last one month. These number of episodes of acute illness in last one month was found more in males and in older age groups.

## CONFLICT

None declared till date.

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