

## Research Article

# The prevalence and profile of disabilities affecting daily activities among the elderly population in Bengaluru city, India

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## ABSTRACT

**Background:** Age related changes and non-communicable diseases are the main causes of disabilities and few such disabilities require assistance for everyday tasks. The objective of the study was to estimate the prevalence of disabilities affecting daily activities and its profile among the elderly aged population in urban area.

**Methods:** A community based, quantitative and cross sectional study was conducted among the 370 elderly subjects residing in ward 32 of Bengaluru city, India during July and August 2015. Data was collected about disabilities in basic and instrumental activities using a pretested questionnaire at their doorsteps. Scoring method was applied to assess the severity of disabilities and analysis was done.

**Results:** The total prevalence of disabilities affecting daily activity as unable to do and with much difficulty was 13% and 9% respectively and it was more among the females. Major difficulty was in climbing the stairs (steps). Non communicable diseases lead to increase in the prevalence of basic daily activity disabilities; it was 39% in males and 50% in females. Basic activity disability between healthy and diseased elderly people was statistically significant in both males and females ( $p < 0.05$ ). The difference between the basic activities and instrumental activities in both males and females is statistically significant ( $p < 0.05$ ).

**Conclusions:** The overall prevalence of disability of daily activities was 21%. Basic daily activities like climbing stairs, using toilet and instrumental daily activities like cooking food, and washing clothes had a higher prevalence of disabilities. Non communicable diseases increased the prevalence of disabilities.

**Keywords:** Disabilities affecting daily activities, Basic, Instrumental, Elderly, Urban area, Bengaluru

## INTRODUCTION

The population of ageing has become norm and is a challenging factor in many countries throughout the world. It is estimated that world's older population will double from 11% to 22%, and the number is expected to be 2 billion by 2050. The proportion of elderly in India in the year 2012 was 8% and will double by 2050.<sup>1</sup> The criteria for old age in developed countries is the age of 60 or 65 years and in many developing countries it is based on the active or financial contribution to their own or family.<sup>2</sup> People experience physical difficulty as their age advances, which is likely to affect their independence and

social activities. The physical and mental health declines once the elderly become disabled and naturally their quality of life is affected.

Disability in activities of daily living is defined as difficulty with or an inability to perform self-care activities.<sup>3</sup> Disabilities in activities of daily living includes basic and instrumental activities. Using the world health survey data, a multi-country study done in 54 countries on prevalence of disability, showed 15% disability and higher in developing than developed countries.<sup>4</sup> Some studies have shown that factors like gender, old age and illiteracy have effects on these

activities and some chronic diseases, such as chronic obstructive pulmonary disease (COPD), osteoarthritis, depression and hypertension also influences the daily activities among the elderly.<sup>5</sup> Disabilities in elderly becomes important because early recognition can lead to early rehabilitation and better quality of life. This study was done with an objective to estimate the prevalence of disabilities affecting daily activities and its profile among the elderly population in Bengaluru.

## METHODS

This is a quantitative, descriptive and cross sectional study conducted among the elderly residing in ward 32 of Bengaluru city. It was done between July and August 2015. Elderly people aged 60 or more were included as subjects for the study. Door to door visit was done to identify the subjects and the importance of the study was explained to them before the data collection and consent was taken to utilize the information for research purpose. Personal interview was conducted to collect the data, and if the elderly subjects were unable to communicate, a household member was allowed to answer after taking a formal consent. The questionnaire was prepared referring to Katz index for daily activity, Modified Barthel index, and the Groningen activity restriction scale.<sup>6-8</sup> A total of 20 questions were included in the questionnaire along with the details regarding demographic variables, financial aids and current chronic disease conditions. Disabilities of activities of daily living were assessed using a scoring method. Subjects who could do their daily activities without any difficulty were assigned - 1, with some difficulty - 2, with much difficulty - 3, and unable to do - 4.

### Sample size

Sample size calculated based on pilot study among 60 elderly individuals and result of highest prevalence of 33% disability for using the toilet. This prevalence rate with an allowable error of 15%, the sample size was calculated to be 342. Assuming a non-response rate of 10%, 370 individuals as samples were considered for the study.

### Analysis

The analysis was done appropriate to particular conditions such as, operating a mobile phone, using a television remote controller, holding and reading a newspaper were assessed only among the literates. All data was analysed using SPSS.

### Definition of terms used

1. Financially dependent: One who does not have any source of income and is completely dependent on any of their family member.

2. Financially independent: One who has a source of income (Including financial assistance from the government).
3. Chronic diseases: It includes all the chronic non communicable diseases based on self-reporting, prescriptions and medications available with the individuals.
4. Basic daily activity: A person's ordinary daily living activity like going and using the toilet, walking, climbing, eating etc.
5. Instrumental daily activity: Daily functional activities that require the use of an instrument like using a mobile phone, cleaning, managing one's own medication, preparing food, etc.

## RESULTS

Among 370 elderly population, 145 (39.2%) were males and 225 (60.8%) were females. Majority were in the age group of 60-69 years (65.4%). More than half of the participants were married (51.4%) and most of them were illiterates (63.5%). Majority of the elderly were financially dependent and some were still working (76.2% and 23.8%). The participants who suffered from at least one of the chronic disease were 68.1% (Table 1).

**Table 1: Distribution of basic characteristics of the elderly population.**

Characteristics	Males N (%)	Females N (%)	Total N (%)
<b>Age group in years</b>			
60-69	92(63.4)	150(66.6)	242(65.4)
70-79	44(30.3)	56(24.8)	100(27)
≥80	9(6.2)	19(8.4)	28(7.6)
<b>Marital status</b>			
Married	118(81.3)	72(32)	190(51.5)
Spouse not alive	24(16.5)	150(66.6)	174(47)
Not married	3(2)	1(0.5)	4(1)
Separated/divorced	-	2(0.9)	2(0.5)
<b>Education</b>			
Illiterate	57(39.3)	178(79.1)	235(63.5)
Literate	88(60.7)	47(20.9)	135(36.5)
<b>Currently on job</b>			
Yes	61(42.1)	27(12)	88(23.8)
No	84(57.9)	198(88)	282(76.2)
<b>Financial status</b>			
Dependent	84(57.9)	124(55.1)	208(56.2)
Independent	61(42.1)	101(44.9)	162(43.8)
<b>Number of chronic diseases</b>			
0 (Healthy)	52(35.9)	66(29.3)	118(31.9)
1	56(38.6)	87(38.7)	143(38.6)
>1	37(25.5)	72(32)	109(29.5)
Total	145(39.2)	225(60.8)	370(100)

Table 2 shows the total prevalence of unable to do and with much difficulty was 13% and 9% respectively and it was more among the females. Major difficulty was in

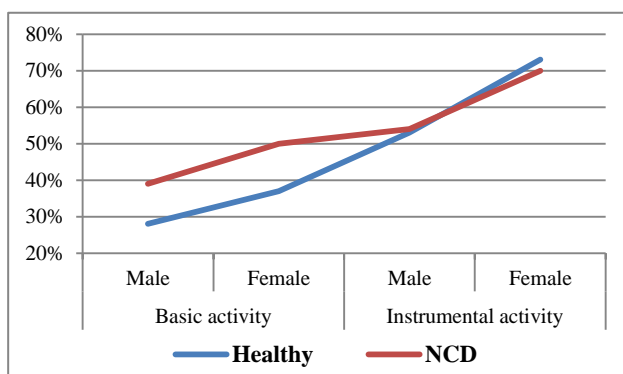
climbing the stairs (steps). Around 17% of men were unable to do shaving on their own. Elderly women, unable to cook their food and wash their clothes were found to be 39% and 50% respectively. Out of 135 literates, 10% were unable to hold a newspaper and read. The presence of non-communicable diseases leads to increase in the prevalence of basic daily activity disabilities among the elderly people, from 28% to 39%

in males and from 37% to 50% in females. But the prevalence of instrumental daily activity disabilities shows no such difference between the healthy and diseased people. The difference in proportions between the groups for basic activities is found to be statistically significant in both males and females (p value <0.05) (Figure 1).

**Table 2: Prevalence of disabilities affecting daily activities among the elderly expressed in percentage.**

Daily activities	Males = 145			Females = 225			P value
	Some difficulty	Much difficulty and unable to do	Total	Some difficulty	Much difficulty and unable to do	Total	
<b>Basic activities</b>							
1.Tooth Brushing	23	6	29	41	4	45	0.00
2.Dressing/undressing	24	6	30	44	5	49	0.00
3.Combing	25	7	32	41	7	48	0.00
4.Walking	39	13	52	50	18	68	0.00
5.Bathing	28	6	34	40	8	48	0.01
6.Going to toilet	24	4	28	36	5	41	0.01
7.Using toilet	44	25	69	44	35	79	0.05
8.Climbing stairs	46	32	78	36	49	85	0.09
9.Getting in/out of bed	13	4	17	19	4	23	0.12
10.Eating	7	4	11	9	1	10	0.91
11.Speech	3	4	7	5	2	7	0.81
<b>Instrumental activities</b>							
1.Usage of aids <sup>#</sup>	2	7	9	9	4	13	0.60
2.Usage of medications	7	4	11	8	4	12	0.77
3.Light household cleaning	38	46	84	53	34	87	0.26
4.Shaving	30	28	58	-	-	-	-
5.Cooking food	10	77	87	27	63	90	0.29
6.Operating mobile phone	12	20	32	36	32	68	0.00
7.Operating TV remote device	15	27	42	26	57	83	0.00
8.Holding newspaper/books to read	13	16	29	28	15	43	0.09
9.Washing clothes	8	84	92	11	84	95	0.35

<sup>#</sup>indicates spectacles/ hearing aids



**Figure 1: Pattern of prevalence of disability affecting basic and instrumental activities among healthy and non-communicable disease (NCD) conditions.**

## DISCUSSION

Assessment of activities of daily living capacity has become very important in determining the health of the elderly. The basic daily activities are required to sustain life whereas, the instrumental daily activities are important for social activity among the elderly. The questionnaire was modified according to the local conditions which were appropriate, using Katz index for daily activity, modified Barthel index, and the Groningen activity restriction scale for assessing the disabilities of daily activities.

In our study of 370 elderly populations a majority of females (60.8%) was found because, many men were unavailable at their homes at the time of survey. Their

age ranged from 60 to 96 years with a mean age of 67.3±6.7 years and a total of 24933 person years. Nearly one fourth of the elderly were still working, which is a positive indication as shown in Table 1.

At least one of the daily activities, 13% of the elderly participants were unable to do. The prevalence of disability for each of the activities was dressing (2%), walking (5%), bathing (5%) and toilet usage (4%). A study in China showed that the disability prevalence was 4.27%, and the prevalence of disability was highest in bathing (3.94%), dressing (2.83%), walking (3.27%) and toilet usage (3.32%). The prevalence of eating disability was the lowest (2.20%); where as in our study none of the elderly had difficulty in this basic activity.<sup>9</sup> The major difficulty was in climbing stairs is attributed to osteoarthritis of the knee joints. Ability of holding and reading a newspaper was assessed only among the literates who showed 10% disability. The increase in the prevalence of disabilities in this study can be due to combined usage of the basic and instrumental disability scales. At least one of the chronic disease (hypertension, diabetes, osteoarthritis of knee joints and cataracts were common) was seen in 68.1% of the elderly. In a study done in an urban area of Meerut on status of morbidities in elderly age group the prevalence of chronic non-communicable diseases was said to be 64.38%.<sup>10</sup>

Figure 1 illustrates the pattern of prevalence of disabilities of daily activities in the presence of non-communicable diseases. The basic activity disabilities show a wide gap between the healthy and diseased group, whereas the gap narrows down in instrumental activity disabilities depicting the influence of non-communicable disease on disabilities of basic activity among the aged. The figure also explains, females are more affected in both the groups. The difference between the basic activities and instrumental activities in both males and females is statistically significant (p value <0.05). Studies have also reported strong associations between non-communicable diseases and disabilities among older persons.<sup>4</sup> Therefore it can be concluded that non-communicable diseases is the major cause for disabilities of daily activities in the elderly.

The limitations of this study are as follows; (1) it was never assessed whether certain activities were being done previously especially for men. Example: cooking, washing clothes etc.; (2) the scoring system of much difficulty and some difficulty was graded according to the participants own perception and hence there could be subjective bias; (3) assessment of chronic diseases was based on self-reporting, prescriptions and medications available with the individuals.

## CONCLUSION

The overall prevalence of disability of daily activities was 21%. Basic daily activities like climbing stairs, using toilet and instrumental daily activities like cooking food, and washing clothes had a higher prevalence. Non-communicable diseases attributed to increase in disabilities.

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