

ORIGINAL ARTICLE

Assessment of functional status in the elderly persons in the rural area of PunjabNirankar Singh¹, Shailendra Kumar², Khursheed Muzammil³, Santosh Kumar Raghav⁴, Jai Veer Singh⁵^{1,2,3}Associate Professor, ⁴Lecturer-cum-statistician, ³Assistant Professor, ⁵Professor & Head, Department of Community Medicine, Muzaffarnagar Medical College, Muzaffarnagar, Uttar Pradesh, India.

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Abstract

Research Question: What is the Functional Status in elderly people? **Objective:** To assess the Functional Status of elderly people in rural area of Patiala District. **Study Design:** Cross-sectional descriptive study. Setting: Arural area of District Patiala- The Field Practice Area of Department of Community Medicine. **Participants:** 743 elderly people aged 60 years & above including 369 males and 374 females **Study Variables:** Elderly, Functional Ability. **Statistical Analysis:** Percentage, z-test **Results:** Out of 743 elderly persons, majority of study population (97.3%), were totally independent for physical activities of daily living (PADL), while rest 2.7% were dependent for one or more physical activities on others including total dependence of 0.5%. The inability in doing specific physical activity of daily living was highest in walking & transferring (3.8%). 3.5% of the study population was totally dependent and 84.6% of them were totally independent while rest 11.9% of them were dependent for their one or more instrumental activities of daily living (IADL) on others. Inability in doing specific instrumental activity of daily living was found to be highest for cooking (25.1%). **Conclusion:** The majority of subjects were independent for doing PADL & IADL activities, showing that they possessed more potential as compared with patients assessed by other studies.

Key Words

Aged; Functional Ability; Rural area; Elderly

Introduction

India is fast catching up with many other graying societies as a result of its pervasive demographic changes and a rapid growth in the size of the older population. Two factors are noted causing these changes: (i) progressive reductions in fertility and mortality, and (ii) added life span with increased survival chances - especially at the later end of the life cycle. These changes, and especially the added life years, have however been mired by the high prevalence of chronic diseases, that affects more than half of the country's older population (Alam 2004) (1).

The challenge ahead for health care in coming years is to ensure the quality of life to a large group of elderly population. Functional health status greatly influences quality of life at old age. Variation may occur in the health and quality of life among different groups of elderly population even from the same geographical region due to these extrinsic factors, which need to

identify for properly addressing health needs of elderly (2)

Functional ability refers to the capability of performing tasks and activities that people find necessary or desirable in their lives. One way of examining the effects of disease on people and communities is through mortality and morbidity (illness) statistics. But another way, which took on increased significance in the last decades of the twentieth century, is through examining functional status or functional ability. Whereas mortality and morbidity tends to be examined relative to specific diseases or conditions, functional ability tends to be considered over and above the various combinations of diseases a person has that might contribute to functional difficulties.

Functional ability is most appropriately examined with reference to particular life-cycle tasks that an individual may need to perform. Some assessment tools examine the ability to perform such age-related

tasks in some detail. Other assessment tools, especially those used in large-scale research, attempt to use questions that work for all age groups.

Independent functioning is important for ensuring well-being and quality of life. Ability to perform activities of daily living (ADL) is a commonly used measure for determining a person's functional status. ADLs can be divided into sub-activities: physical activities of daily living (PADL), and instrumental activities of daily living (IADL). PADL represents activities related to mobility and basic bodily maintenance. These include using stairs, walking inside and outside, bathing, dressing, using the toilet, transferring and feeding (3) IADLs are activities needed in independent adaptation to the environment (e.g. housekeeping, shopping, handling finances, meal preparation, transportation) (Lawton and Brody 1969). (4) A certain level of upper and lower body functioning is required to perform these activities without difficulties (Lawrence and Jette 1996). (5)

IADLs are not merely physical indicators of functioning but also indicate cognitive performance, such as managing financial transactions, taking medications, travelling alone and using the telephone. In this sense IADLs can be defined as activities required in order being involved in the community (Ostir et al. 1999). (6) Some IADLs, like shopping, meal preparation and housework, also include an element of social roles, as performing them might be traditionally associated with female gender.

Lack of functional capacity in each ADL or IADL task can result from any combination of physical problems, memory loss, lack of social resources, or lack of motivation (e.g., because of depression). The determinants of functional ability of elderly are: the no. of chronic conditions, age/sex, physical activity, socio-economic status, education, occupation etc.

Aims & Objectives

The objective of present study was to study functional ability in the elderly population aged 60 years & above in rural Punjab.

Material and Methods

The present study was conducted in rural field practice area Gajju Khera, attached to Department of Community Medicine, Gian Sagar Medical College & Hospital Ram Nagar, Banur, District Patiala, during the period, December 2009 to April 2010.

There were 1431 families, which were registered at the RHTC, having a total of 8871 population, including 779 elderly persons aged 60 yrs & above (8.78 % of the total

population). Every registered house having elderly person was selected by house-to-house survey. As a result of this method 743 elderly persons were contacted and examined; some of the elderly persons were not been approached due to their jobs or some other reason.

A team of medical officer and medical social workers visited the houses having elderly people and collected information on a pre-designed and pre-tested format. Besides general questions about medical history, it contained questions about different basic and instrumental activities of daily living.

Activities of Daily Living (ADLs)

There are seven categories of ADLs:

1. Feeding
2. Brushing
3. Bathing
4. Dressing
5. Toileting
6. Walking & transferring

Instrumental Activities of Daily Living (IADLs)

IADLs refer to skills beyond basic self-care and include eight typical domestic tasks:

1. Housekeeping
2. Travelling
3. Food preparation
4. Laundry
5. Shopping
6. Using a telephone
7. Managing medication
8. Handling finances

Females were scored on all eight areas of function; however males, the areas of food preparation, housekeeping & laundry were excluded. Each of these abilities was classified as independent needing assistance, or support instruments or inability to perform activities.

When the person could not report their physical function due to cognitive impairment, PADL & IADL were determined by the information obtained from the family members.

The data collected was first coded & then transferred on to a master chart from which simple as well as correlation tables were prepared, analyzed and statistically evaluated.

The pre-designed and pre-tested questionnaire was used to collect the data. The questionnaire included information on socio-demographic variables, behavioural factors (e.g. smoking, use of non-smoked

tobacco, alcohol consumption), past and present illness including information on utilization of health services.

Results

Out of 779 elderly persons who were registered at the RHTC, a total of 743 elderly were assessed in present study, by house-to-house survey comprising 369 males (49.7%) & 374 females (50.3%) were included.

As shown in the [figure 1](#), maximum population of the elderly persons was in the age group of 60-64 years (28.2%), followed by 65-69 years age group (24.6%) and 15.4% of the aged were 80 years and above. The maximum numbers of males as well as females were in the age group of 60-64 years (26.5 & 29.7% respectively), were in the age group of 60-64 years.

It was observed in [table 1](#) that the dependency in doing specific physical activity of daily living (PADL) was found to be highest for using walking & transferring (3.8%), followed by dressing (3.3%), bathing (2.7%), feeding (1.9%), toileting (1.6%) and least for brushing (1.2%).

Dependency in doing specific instrumental activity of daily living (IADL) was found to be highest for using cooking (25.1%), followed by laundering (24.1%), housekeeping (20.3%), using telephone (17.6%), managing medicines (16.1%), handling money (7.5%) traveling (7.0%), and least for shopping (5.5%) as shown in [Table 1](#).

It may be seen from [table 2](#) that majority of study population were totally independent for PADL (97.3%), while rest 2.7% were dependent for one or more physical activities on others including total dependence of 0.5%. It was also observed that 3.5% of the elderly persons were totally dependent and 84.6% of study population was totally independent while rest 11.9% of them had some degree of dependency for their instrumental activities of daily living (IADL) on others.

[Figure 2](#) shows that the prevalence of diseases in the study population was highest for musculoskeletal diseases (71.6%); followed by cardiovascular diseases (68.4%), ocular diseases (52.1%), nervous system diseases (50.7%) and endocrinal and metabolic disorders (41.3%).

[Table 3](#) shows the comparison of the mean scores of PADL and IADL activities with common diseases in the elderly persons. It was observed that the mean scores of PADL & IADL activities were lower in the persons having musculoskeletal & neurological diseases and it was found to be highly statistically significant.

Discussion

The proportion of elderly people dependent in the various PADL activities ranged from 1.2 to 3.8% as compared to Kuptniratsaikul V.(1996)(7) and Pinholt (1987)(8)(3 to 11 % and 16 to 33% respectively). The highest dependency was found for walking & transferring (3.8%) due to problem in lower extremity strength.

Considering the IADL activities, the dependency ranged from 5.5% to 25.1% with highest dependency in cooking (25.1%), laundering (24.1%) & housekeeping (20.3%).

In different studies conducted by Kuptniratsaikul V.(1996)7 and Spector et al (1987) (9) the dependency in IADL activities ranged from 7 to 30% and 10 to 63% respectively. Elderly people were more likely to be dependent in majority of IADL activities (15.4%) as compared with the various PADL activities (2.7%).

The different studies conducted on functional ability across the world were by Alam Moneer et al,1 Avlund K. et al, (10) Sulander T, (11) Warshaw et al; (12) but the findings were variable and difficult to compare because these were conducted in different settings of elderly population, the evaluation methods of the tests were different; as well as the test items and the scaling were different. Overall 97.3% of the study population was found to be totally independent and 0.5% was totally dependent for PADL; Pradhan et al (2000) (13) and Kuptniratsaikul V (1996) (7) found almost similar findings as 93.9% & 0.4% and 88 % & 1% respectively.

In present study it was observed that 84.6% of the study population was totally independent in all IADL and 3.5% were totally dependent in all these IADL, in another study conducted in Thailand by Kuptniratsaikul V. (1996), (7) it was found that 4.0% elderly were dependent and 68.0% elderly were independent for IADL.

With regard to the morbidity status of the population studied, the common diseases were musculoskeletal, cardiovascular, ocular, neurological and endocrinal & metabolic diseases. Comparing the mean & standard deviation of PADL & IADL scores among these disease groups, it was found that the PADL scores of elderly persons with musculoskeletal diseases and the IADL scores with neurological diseases were lowest as compared with other disease groups showing higher degree of dependency of PADL & IADL among these persons; as compared to the findings a study conducted by Kuptniratsaikul V (1996)7 in Thailand.

Conclusion

Assessment of functional status is beneficial in the evaluation of physical as well as mental abilities. A total of 743 elderly people from rural setting were interviewed & assessed for these abilities. The majority of elderly persons were found independent for doing PADL (97.3%) & IADL (84.6%) activities, showing that they possessed more potential as compared with patients assessed by other studies.

Authors Contribution

NS: Collection & analysis of data, SK: Manuscript writing, KM: Critical inputs and necessary corrections in manuscript as per guidelines, SKR; application of statistical test, JVS: Finalization of manuscript.

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Tables

TABLE NO. 1 PREVALENCE OF FUNCTIONAL ABILITY IN PADL & IADL

Functional Ability	Independent	Some degree of Dependence	Total Dependence
PADL	No. (%)	No. (%)	No. (%)
Feeding	729 (98.1)	11(1.5)	03 (0.4)
Brushing	734 (98.8)	07(0.9)	02 (0.3)
Bathing	723 (97.3)	16 (2.2)	04 (0.5)
Dressing	715 (96.2)	19 (2.6)	05 (0.7)
Toileting	731 (98.4)	10 (1.3)	02 (0.3)
Walking & Transferring	715 (96.2)	23 (3.1)	05 (0.7)
IADL	No. (%)	No. (%)	No. (%)
Housekeeping*	298 (79.7)	61(16.3)	15(4.0)
Cooking*	280 (74.8)	77(20.6)	17(4.5)
Laundering*	284 (75.9)	74(19.8)	16(4.3)
Shopping	702(94.5)	24(3.2)	17(2.3)
Travelling	691(93.0)	38(5.1)	14(1.9)
Handling Money	687(92.5)	37(4.9)	19(2.6)
Using Telephone	612(82.4)	98(13.2)	33(4.4)
Managing Medications	623(83.8)	89(11.9)	31(4.2)

*Males were excluded for these IADLs

TABLE NO. 2 ABILITY LEVEL OF PADL & IADL IN THE STUDY GROUP

	PADL	IADL
Independent in all Functions	97.3%	84.6%
Some Degree of Dependence	2.2%	11.9%
Total Dependence	0.5%	3.5%

TABLE NO. 3 COMPARISON OF PADL & IADL SCORES FOR PATIENTS WITH COMMON MORBIDITIES

Diseases	PADL Score $x \pm SD$	IADL Score $x \pm SD$	z-Test (p value)
Musculoskeletal Diseases (n=532)	5.05 \pm 2.26	6.69 \pm 2.96	24.85 p< 0.001
Cardiovascular Diseases (n=508)	5.89 \pm 3.11	6.95 \pm 3.20	10.93 p<0.001
Neurological diseases (n=377)	5.65 \pm 1.83	6.17 \pm 1.96	17.03 p< 0.001
Ocular diseases (n=387)	5.96 \pm 1.92	7.28 \pm 2.12	18.08 p<0.001
Endocrinal & Metabolic diseases (n=307)	5.56 \pm 2.25	6.75 \pm 2.36	12.79 p<0.001

Figures

FIGURE NO. 1 DISTRIBUTION OF STUDY SUBJECTS ACCORDING TO AGE GROUP AND SEX

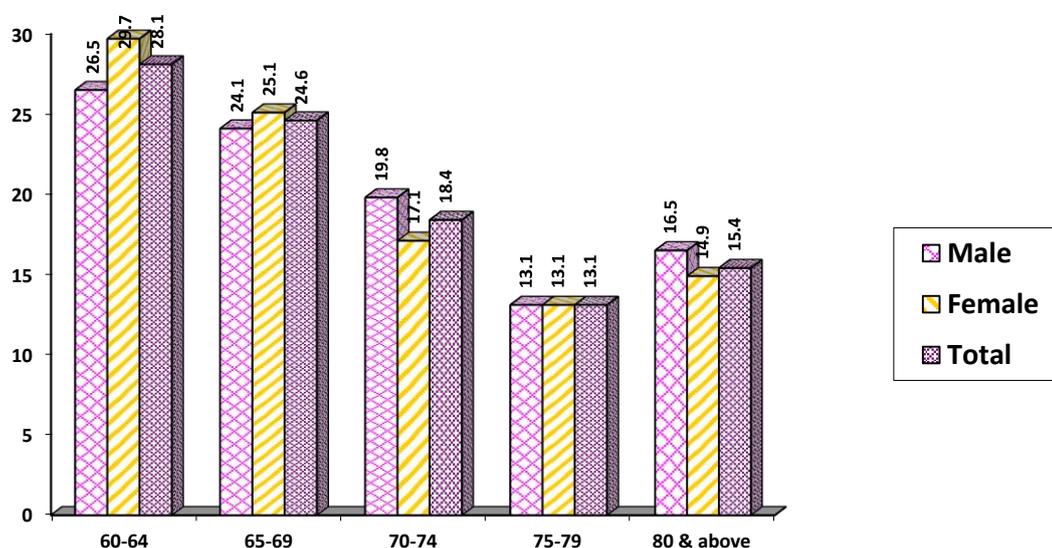


FIGURE NO. 2 DISTRIBUTION OF STUDY SUBJECTS ACCORDING TO THEIR MORBIDITY STATUS (MULTIPLE RESPONSE IN %)

