Functional Status of the Elderly Santal People

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ABSTRACT: *Worldwide elderly population and their life expectancy are increasing gradually. Longevity in most cases brings down poorer health as well as functional status. Present article aims to focus on the functional status of tribal (Santal) elderly persons (aged 60 years and above) residing in a particular village. The present study also attempts to highlight the factors associated with functional status of the elderly people under study. The functional status has been assessed by adopting two scales namely: Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL).There are 39.29% respondents categorized as dependent on at least one of the ADL whereas, 83.93% respondents were dependence on IADL. Out of total respondents most common ADL dependency is bladder continence (72.75%) and in case of IADL it is handling finance (74.47%). The correlation between ADL and IADL is positively significant (r=0.672).*

Keywords—Activities of daily living. Aged. Instrumental activities of daily living. Functional status.

I. INTRODUCTION

India is a land of most rapidly ageing populations (aged 60 and above) in the developing world. This phenomenon is marked by a series of social, cultural and epidemiological implications due to the greater prevalence of morbidity and functional disability in this age group. Functional status is an individual's ability to live independently and to relate to their environment or to perform normal daily activities required to meet basic needs, fulfill usual roles and maintain health and well-being. Functional status subsumes related concepts of interest: functional capacity and functional performance. While functional capacity represents an individual's maximum capacity to perform daily activities in the physical, psychological, social and spiritual domains of life, functional performance refers to the activities people actually do during the course of their daily lives. A maximal exercise test measures physical functional capacity, while a self-report of activities of daily living measures functional performance.

Functional status can be influenced by biological or physiological impairment and socio-economic factors, symptoms, mood and other factors. It is also likely to be influenced by health perceptions. For example, a person whom most judge to be well but who views himself as ill may have a low level of functional performance in relation to his capacity.

Loss of functional status is associated with increased risk of institutionalization and falls and, it was considered an independent risk factor for mortality. Numerous studies have shown an association between aging and higher risks of functional dependence, as well as a high prevalence of functional disability or limited functional ability in the older adult population. These studies highlight that the added years of life should be accompanied by quality of life and should be free from the high cost of dependence. The decline in functional status may also be associated with a number of multidimensional factors that interact to determine this status in older adults. Early detection of these factors can help prevent functional dependence in this group.

Functional ability is a key indicator of elderly to stay at home. For progressive chronic diseases like heart failure and chronic obstructive pulmonary disease, it is particularly important to understand functional ability as functional status losses are inevitable. Slowing the decline, then, is the goal for most patients with these diseases and the health care workers caring for them.

Functional status has been used to describe motor function, ability to perform ADL (activities of daily living) and the ability to perform IADL (Knight, 2000). As people grow old they may experience that their health deteriorates and that being old often involves functional decline (Bank, 1995). Decline functional status is measured by an individual's loss of independence in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) over a period of time.

What is Activities of Daily Living (ADL)?

The term Activities of Daily Living (ADL) has been used to refer to a range of common activities whose performance is required for personal self-maintenance and independent community residence (Fillenbaum, 1988). Functional status can be defined as the ability to perform activities necessary to ensure well-being, and it can be assessed by examining the ability to carry out various activities of daily living (Heikkinen, 1998). The ADL functional statuses with respect to eating, dressing, getting in and out of a bed or chair, using the toilet, bathing, and continence are used to measure the elderly's degree of independence in daily living (Jagger, Spiers and Clarke, 1993). If none of the six ADL activities is impaired, the individual is classified as "active"; if one or two activities are impaired, he or she is classified as "mild disabled"; "severely disabled" refers to elderly who have three or more activities impaired (Zeng, Vaupel et.al.). ADLs are defined as "the things we normally do...such as feeding ourselves, bathing, dressing, grooming, work, homemaking, and leisure"(MedicineNet.com Medical Dictionary). Measurement of activities of daily living (ADL) is an indicator of an individual's functional capacity, a reasonable proxy of health status, and a key element in attempts to measure quality of life (Katz et al., 1983).

What is Instrumental Activities of Daily Living (IADL)?

Instrumental Activities of Daily Living, which is concerned with more complex activities needed for independent living (Fillenbaum, 1988). IADL refer to a series of life functions necessary for maintaining a person's immediate environment. This type of activities measure competence in functions that are less bodily oriented than physical self-maintenance. They include managing money, shopping, telephone use; travel in community, housekeeping, preparing meals, and taking medications correctly. It is performed by a person who is living independently in a community setting during the course of a normal day, such as above tasks. IADL are activities related to independent living and involve interaction with the physical and social environment, generally more complex than personal ADL. Instrumental activities of daily living (IADLs) measures an individual's ability to carry out tasks that may not need to be done daily like ADLs, but which nevertheless are important for living independently. Intervention may be required to help an individual adapt to difficulties experienced in performing IADLs. Performance of IADLs requires mental as well as physical capacity.

II. OBJECTIVES OF THE PRESENT STUDY

The main purpose of this study is to describe the functional status of the elderly Santal people living in their home assessed by two different scales such ADL and IADL. The study also aims to understand the prevalence and types of functional dependence of tribal elderly living in a social environment. The relevance and importance of assessing functional status of tribal elderly was also within the objectives of this study.

III. MATERIALS AND METHODS

A uni-ethnic village resided by the Santal tribe was purposively selected for the present study. The village is named Dhadkidih and located within Ghatsila Police Station in the district of Singhbhum in Jharkhand state, India. In the village there are only 56 elderly (aged 60 and above as per Indian context) Santal populations across both the sexes. All aged people who are permanently staying in their own house were considered for the present study. A structured questionnaire schedule was used to collect data on social milieu and demographical aspects of the respondents. Functional status of the respondents were assessed by using the Barthel Index (BI) of Activities of Daily Living (using bowel, bladder, bathing, feeding, dressing, grooming, transferring, toilet use, mobility and stairs use) and the Lawton Instrumental Activities of Daily Living (telephone or mobile use, shopping, food preparation, housekeeping, laundry, transferring, own medication and handling finance). Other standard anthropological methods like participation observation, case studies were also followed. The data were computed by using SPSS v 16.0.

IV.   RESULTS
Table I: Socio-demographic Characteristics of the Respondents

Characteristics	Male		Female		Total	
	N	%	N	%	N	%
Population						
	25	44.64	31	55.36	56	100
Age Group						
60-69	12	48.0	13	41.94	25	44.64
70-79	10	40.0	12	38.71	22	39.29
80-89	03	12.0	06	19.35	09	16.07
Marital Status						
Married	17	68.0	15	48.39	32	57.14
Widow	00	00.0	16	51.61	16	28.57
Widower	08	32.0	00	00.0	08	14.29
Education						
No education	22	88.0	30	96.77	52	92.86
Primary	03	12.0	01	03.23	04	07.14
Family type						
Joint	24	96.0	26	83.87	50	89.28
Nuclear	01	04.0	02	06.45	03	05.36
Broken	00	00.0	03	09.68	03	05.36
Occupation						
Unskilled labor	02	08.0	01	03.23	03	05.36
Agriculture	18	72.0	02	06.45	20	35.71
Household chores	00	00.0	15	48.39	15	26.79
Traditional healer	01	04.0	00	00.0	01	01.79
No occupation	04	16.0	13	41.94	17	30.35
Living status						
With spouse	01	04.0	04	12.90	05	08.93
With sons	08	32.0	12	38.71	20	35.71
With spouse and sons	16	64.0	10	32.26	26	46.43
Alone	00	00.0	05	16.13	05	08.93

Table I shows the socio-demographic characteristics of the respondents. The mean age of the respondents was 71.61 years old and the median age was 72 years. As per distribution of the sex of the respondents female (55.36%) predominated over male (44.64%). It is evident from the table-I that in case of the age group 80 and above there is more female elderly (19.35%) compared to their male counterpart (12.0%). Among the studied population 28.57% were widow, 14.29% were widower and 57.14% were married. Out of total male population 68% were married where as out of total female population 48.39% were married.

In case of educational status of the respondents it is found that there are only 07.14% persons who received primary education and remaining population were unlettered. Table-I shows that among the females (96.86%) were illiterate where as in case of male 88.0% were unlettered out of total male respondents.

It is evident from the above table most of the respondents live in joint family. There are only 05.36% female who are living in broken family. However, 46.43% respondents are living with their spouses and sons. Among the total respondents 35.71% are without spouse and they are living with their sons. Only 08.93% female respondents have solitary living.

Among the total respondents 35.71% are engaged in agricultural activities in their own land and out of the total female respondent 26.79% participate in household chores. The household chores are always the activity of the females in the village. Out of the total respondents more female (41.94%) are without any occupation compared to their male counterpart (16.0%).

Table II: Age group wise Functional Level of Studied Sample

	Functional level	Age group (years)		
		60-69 (%)	70-79 (%)	80+ (%)
ADL	Totally dependent	0.00	0.00	33.33
	Very dependent	0.00	4.55	44.44
	Partially dependent	4.00	9.09	0.00
	Needs help to do	4.00	40.9	11.12
	Independent	92.0	45.46	11.11
IADL	Dependent	4.00	13.64	66.67
	Low function	0.00	27.27	33.33
	High function	64.0	54.55	0.00
	Independent	32.0	4.55	0.00

According to Barthel Index (BI) 22 respondents (39.29%) were functionally dependent on at least one of the Activities of Daily Living. The categorization of dependency levels has been presented under table no.II among the respondents belonging at the age group 60 to 69 92% were functionally independent. However, among the respondents belonging at the age group 70 to 79 it is found that there were 45.46% 'independent', 40.9% have 'need help to do', 09.09% 'partially dependent' and 04.55% 'very dependent' as per Barthel Index. Among the respondents at the age group 80 and above 33.33% were 'totally dependent', 44.44% were 'very dependent' and 11.12% were in 'need help to do' as per BI.

According to Lawton Instrumental Activities of Daily Living (IADL) out of the total number of respondents 47 (83.93%) were dependent on at least one activity. Functional level of 64.0% population was high and 32.0% were totally independent but only 04.0% were dependent on IADL and they are belonging at the age group 60 to 69. Among the populations within the age group 70 to 79 there were 54.55% people who were 'functionally high' followed by 27.27% people under the category of 'low functional level' and 13.64% people under 'totally dependent' category and only 04.55% were under 'independent' category. The functional level of the population aged 80 and above is lower compared to the population belonging at the age ranging from 60 to 79 since at the age group 80 and above 66.67% were 'totally dependent' and 33.37% belonging to the category of 'low function'.

From the table no.II it is also revealed that as the age of the population go on, the dependency rate of ADL and IADL increases. Dependency rate is higher in case of female because they live longer than their male counterpart. It is also revealed that the studied population is more dependent on IADL (83.93%) than ADL (39.29%).

Table III: Types of Functional Dependency

ADL (No of dependent = 22)			IADL (No of dependent = 47)		
Dependence on	No	% of dependency	Dependence on	No	% of dependency
Bowel	11	50.0	Telephone use	05	10.64
Bladder	16	72.73	Shopping	07	14.89
Bathing	11	50.0	Food preparation	31	65.96
Feeding	04	18.18	Housekeeping	23	48.94
Dressing	07	31.82	Laundry	07	14.89
Grooming	05	22.73	Mode of transportation	25	53.19
Transferring	06	27.27	Own medication	04	08.51
Toilet use	12	54.55	Handle finance	35	74.47
Mobility	05	22.73			
Stairs	**				

* Some respondents were dependent in more than one activity.
**In the study area all the houses were single storey mud house without stairs.

It is revealed from table no.III that out of total population 39.29% shows some kind of dependence on Activities of Daily Living (ADL) assessed by Barthel Index (BI) which encompasses question assessment on bowl and bladder continence, ability to bathing, feeding, dressing, grooming, transferring (e.g. from bed to chair etc.), ability to use toilet, mobility and ability to climb stairs. The most common type of functional dependence were bladder continence (72.73%) followed by toilet use (54.55%), bowel continence (50.0%), bathing (50.0%), dressing (31.82%), problem of transferring (27.27%), grooming (22.73%), mobility (22.73%) and 18.18% with feeding

It is evident from table no.III that among the respondent dependency ratio on Instrumental Activities of Daily Living (IADL) based on M.P. Lawton is greater than the Activities of Daily Living (ADL). Like ADL, Lawton Index encompasses eight questions such as telephone use, shopping, food preparation, housekeeping, laundry, transportation, own medication and handling finance. The most common dependence on IADL were in handling finance (74.47%) followed by preparing food (65.96%), transferring (53.19%), housekeeping (48.94%) and least dependency with shopping (14.89%), laundry (14.89%), telephone use (10.64%) and own medication (08.51%).

Table IV: Mean sd and t-test of ADL and IADL of Studied Sample

Variable	N		Male		Female		t-value	P
	Male	Female	Mean	Sd	Mean	Sd		
ADL	25	31	4.4800	0.91833	4.0000	1.39044	1.483	0.144
IADL	25	31	2.7600	0.83066	2.9032	.97826	-0.582	0.563

From table no.IV it is evident that the mean value of male is greater than female in case of ADL and in the case of IADL mean value of female is greater than male. It also depicts that the t-value is found to be non significant in case of difference in mean values of both ADL and IADL, between males and females.

Table V: Age group wise mean (sd) and ANOVA of ADL and IADL among the Studied Sample

Variable	Age group (years)			F	Sig.
	60-69 (n=25)	70-79 (n=22)	80+ (n=9)		
ADL	4.880 (0.44)	4.272 (0.83)	2.222 (1.39)	35.939	0.000
IADL	3.400 (0.50)	2.772 (0.75)	1.444 (0.52)	33.600	0.000

It is clear from the table that the mean of ADL in the age group of 60-69 is greater than other two age groups (70-79; 80 and above). Further, the mean of IADL in the age group of 60-69 is also greater than other two age groups. For both the parameters, the mean differences are found to be significant (F=35.939 and 33.600 for ADL and IADL, respectively). It indicates that mean score of ADL and IADL is highly significant.

Table VI: Correlation coefficient of ADL and IADL

		ADL	IADL
ADL	**Pearson Correlation** **N**	1	.672** 56
IADL	**Pearson Correlation** **N**	.672** 56	1

** Correlation in significant at the 0.01 level.

There is the correlation between ADL and IADL and the association between ADL and IADL is positively significant (r=0.672).

V. DISCUSSION

It is revealed from the study that there are high percentages of elderly people i.e. 10.20% within the studied village and the figure is greater than the national level (7.5% as per 2001 census) since it is found that the total population of the village under study is 549 and out of them 56 were aged (age 60 and above). Among the elderly population (aged 60 and above) of the village there are more number of elderly females that their male counterpart and in terms of longevity female also ascend over male and these two features are very much in tune with the global scenario. On the aspects of marital status of the respondents we find more married couple than both the widow and widower. Maximum of the elderly respondents live with their spouse and married son and thus live in joint family. Most of the widow and widower reside with sons and only 08.93% of the widow lives a lonely. Approximate 75% of the elderly males are engaged in agricultural activities and 50% of the females perform only the household chores. It is noticed that there are more economically inactive elderly female than their male counterpart in the village since there are more longevity among the females and it is well established that here is a relation between age and occupation and physical activities of man decrease with the aging process.

We found that 92% of the elderly people (aged 60 and above) under study belong to age group 60-69 and are independent on ADL. However, it is evident that percentage of independency decreases with the increase of age. It is also found that respondents at the age 80 and above were functionally 'very dependent'

followed by 'totally dependent' category compared to the elderly segment below the age of 80. Among the respondents in the age ranging from 70 to 79 it is found that 45.46% of them need help from someone to do such kind of day to day essential activities. It may be said that functionally they were independent when this segment was in the age ranging from 60-69 years and they may be 'fully dependent' at the age of 80 and above. Similarly, all of these findings are applicable to IADL; however, dependency of IADLs is higher than ADLs because this is more skilled job and requires more complex expertise. Concerning the functional capacity based on the result of this study 39.29% population are dependent on ADL and the percentage increasing to 83.93% for IADL.

In the area of ADL, the study depicted that continence (both bowel and bladder) was the activity with higher dependence. On other hand in case of IADL, handling finance were the most dependent ones.

VI.   CONCLUSION

On the basis of the preceding sections of the present article it may be stated that the functional decline is common among the elderly population under study. The risk factors for functional decline are age as well as presence of ailments rather than socio-economic status. Compared to their male counterpart, declined functional level, development of the disability and dependence found more among the female elderly owing to their greater longevity and widowhood. Prevention of functional decline of the elderly people need priority and such prevention may be possible by way of detecting the functional decline at first stage followed by rehabilitation and/or quality care in the home. There are negative effects of decline of functional status on health and the concept of "Active Ageing" fully demolishes by decline of functional status. The authors suggest that the current study may be extended further over a large number of elderly populations across different ethnic groups so that same may be used for future policy planning, execution and service enhancement purposes.

REFERENCES

[1].   Bank, S.P. (1995). Before the last leaves fall: Sibling connections among the elderly. Journal of Geriatric Psychiatry, 28, 183-195.
[2].   Beland, F., Zunzunegui, M.V. (1999). Predictors of functional status in older people living at home. Age and Ageing. 28, 153-159.
[3].   Biswas, S.K. Ageing in Contemporary India. 8th Indian Anthropological Society Occasional Papers.
[4].   Chan, K.M., Pang, W.S., Ee, C.H., Ding, Y.Y., Choo P. (1999). Functional Status of the Elderly in Singapore. Singapore Medical Journal, 40 (10).
[5].   Fillenbaum, G.G. (1988). Activities of daily living. The Encyclopedia of Ageing, 2,7-9.
[6].   Heikkinen, R. L., (1998). The role of physical activity in healthy ageing. World Health Organization- Ageing and Helth Programme.
[7].   Hoffman, T., Mc Kenna, K., Cooke, D. & Tooth, L,. (2003). Outcomes after stroke: Basic and instrumental activities of daily living, community reintegration and generic health status. Australian Occupational Therapy Journal, 225-233.
[8].   Jagger, C., Spiers,N.A.,Clarke, M. (1993). Factors associated with decline in function, institutionalization and mortality in the elderly. Age and Ageing, 22, 190-197.
[9].   Knight, M M. (2000). Cognitive ability and functional status. Journal of Advanced Nursing, 31 (6), 1459-1469.
[10].   Kua, E.H. (1991). The Functional Status of Elderly Chinese 75 Years and Older. Singapore Medical Journal. 32, 221-224.
[11].   Lawton, M.P., Brody, E.M., (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. Gerontologist 9, 179-186.
[12].   Lawton M.P. (1988). Scales to measure competence in everyday activities. Psychopharmacology Bulletin 24, 609-614.
[13].   Million-Calenti, J.C., Tubio, J., Pita-Fernandez, S., Gonzalez-Abraldes, I., Lorenzo, T., Fernandez-Arruty, T., Maseda, A. (2010). Prevalence of functional disability in activities of daily living (ADL), instrumental activities of daily living (IADL) and associated factors, as predictors of morbidity and mortality. Archives of Gerontology and Geriatrics, 50, 306-310.
[14].   Wu,T. (2010). Functional Health Status of the Elderly in Taiwan. Healthy Ageing & Clinical Care in the Elderly. 2, 9-17./ www.la-press.com
[15].   Zeng, Y., Vaupel, J.W., Xiao, Zhenyu., Zhang, C., Liu, Y. (2002). Sociodemographic and Health Profiles of the Oldest Old in China. Population and development review. 28 (2), 251-273.