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Research Article

PREVALENCE AND FACTORS INFLUENCING FUNCTIONAL STATUS LIMITATION AMONG ELDERLY IN URBAN AREA OF KURNOOL CITY; ANDHRA PRADESH

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A B S T R A C T

Background: The number and proportion of elderly persons is increasing, in India, as well as the world. Functional status is an important component of health status of the elderly and its assessment is fundamental aspect in geriatric examination.
Aim: The aim of the study was to estimate the prevalence of functional status limitation and its association with socio-demographic variables among elderly persons in urban area of Kurnool.
Materials and Methods: A community-based cross-sectional study was conducted during November-December 2016 among 200 elderly persons residing in Kurnool city were interviewed using valid and reliable functional assessment scales namely Katz Activities of Daily Living (ADL) and Lawton and Brody Instrumental Activities of Daily Living (IADL). Statistical procedures for the analyses included descriptive statistics and logistic regression
Results: The prevalence of ADL and IADL activity limitation was 68% and 85% respectively. The prevalence was less among men than women. The prevalence increased with age and those with co-morbidities.
Conclusions: The prevalence of physical disability and functional limitation among elderly appears to be much higher than National level. Associations with socio demographic variables were consistent with other studies.

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.[1] On account of better education, health facilities and increase in life expectancy, the percentage of elderly population (60+) has increased all over the world. India is the second most populous country in the world.[2] There has been a progressive increase in proportion of elderly population in India from 6.8% in 1991 to 8.6% in 2011.[3] With this demographic trend the current health system have to deal with the health challenges of the elderly who may be prone to chronic diseases. As disabilities are common complication of chronic diseases, understanding their functional status is vital to curtail this health issue. Studies on functional status of the elderly and their disabilities are found to be few in the existing literature.

The aim of this study was to assess the prevalence of limitations in activities of daily living (ADL) and instrumental activities of daily living (IADL) among elderly and to determine its associated factors.

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MATERIALS AND METHODS

Community based cross sectional study was conducted in Kurnool city. Kurnool city is governed by Municipal Corporation which comes under Kurnool Metropolitan Region. The Kurnool city is located in Andhra Pradesh state of India. Its urban / metropolitan population is 484,327.[4] Urban subjects aged 60 years and above were considered as the study subjects. The sample size was calculated by using formula 4 PQ/L2 (P=Prevalence, Q=1-P; L=allowable error). For this study, we had taken prevalence of functional disability in subjects 60 years and above as 47% (Sowmiya et al., 2015.[5)] and L=15% of P, the estimated sample size was 200.

The study sample was obtained using multistage simple random sampling. In urban area, five wards were selected by simple random sampling. Forty older persons were selected from each ward. Each of the selected wards were divided into four parts with equal population (approximately) so that from all the parts equal numbers of subjects were enrolled. For each part of the ward, one house was selected randomly. Starting from this house, every nearest next house was surveyed until ten subjects were enrolled for the study. A similar procedure was applied in the remaining parts of the ward. Subjects with a terminal illness or serious mental issues were excluded.

The study was approved by the Institute Ethical Committee, and consent was obtained from the participants of the study and the necessary support and counseling were given. Data was collected by using a predesigned and pretested questionnaire. Data on socio demographic factors included age, gender, level of education, and type of family. To evaluate the functional ability, two self-assessment scales Katz ADL scale and Lawton and Brody IADL scale were used. The Katz ADL scale included the following activities: Bathing, dressing, eating, toileting and transferring from bed to chair.[6] The Lawton and Brody IADL scale included the following activities: shopping, preparing or cooking food, using the telephone, washing clothes, housekeeping, transportation, taking medication, and managing finances.[7] The responses of items in the scales were categorized into having no dependency and having dependency in daily life.

Data Analysis

The information collected by the questionnaire, was tabulated and analysed by using Excel 2007 and SPSS 13.0 Software. The prevalence of functional disability was estimated and expressed in percentages. Adjusted Odds ratios were estimated by logistic regression analysis to identify the factors influencing them functional status. $P < 0.05$ was considered to be statistically significant.

RESULTS

The mean age of the study population was 63.78 ± 6.07years with age ranging from 60 years to 90 years. Out of the 200 elderly individuals included in the study, 124(62%) were females and 76 (38%) males.64% of study group belongs to Hindu religion fallowed by Muslim 27% and Christian 9%. Majority of the elderly were illiterate148 (74%), and a total of 359 (89.5%) study subjects were living in joint families. 91.5% of elderly were in Below Poverty Line(BPL) shown in (Table1).

Table 1 Socio demographic characteristics of the study population

Characteristics	No (%)
Age	
60-69	134 (67%)
70-79	51 (25.5%)
>80	15 (7.5%)
Sex	
Female	124 (62%)
Male	76 (38%)
Religion	
Christian	18 (9%)
Hindu	128 (64%)
Muslim	54 (27%)
Education	
Illiterate	148 (74%)
Literate	52 (26%)
Family	
Nuclear	85 (42.5%)
Joint	104 (52%)
Extended	11 (5.5%)
Socio economic status	
No card	8 (4%)
Pink card(APL)	9 (4.5%)
White card (BPL)	183 (91.5%)
Chronic diseases (Present)	
D.M	27 (13.5%)
HTN	72 (36%)
Falls	41 (20.5%)

Fig.1 shows the prevalence of functional disability for each ADL item. 136(68%) needed one or more assistance in various ADL. In the basic ADLs, 29%, the largest group, had difficulty in chair/bed transfers, followed by difficulty in dressing self & feeding (8%); difficulty in toileting was the least prevalent (6%). In the IADLs, 87% and 85% had difficulty in laundry and housekeeping; difficulty in finance management & travelling to outdoors was next at 67% & 66.5%, and difficulty in responsibility for own medication (10.5%) was the least prevalent. 170 (85%) needed one or more assistance in IADL shown in Fig 2.

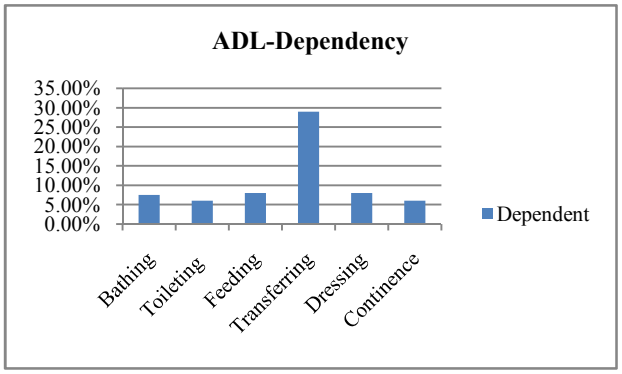

Figure 1 Distribution of Activities of Daily Living among study subjects

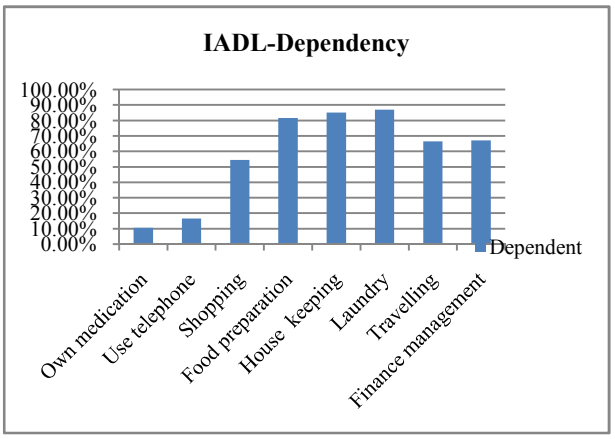

Figure 2 Distribution of Instrumental Activities of Daily Living among study subjects

In the descriptive analysis, with the more advanced the age, the higher the prevalence of functional disability in each ADL item was in our study, ADL limitations were more among female elderly (26%) as compared to males (17%). Among Illiterates and BPL families ADL limitation was higher. Also the elderly residing in and joint families (25%) having more functional limitation as compared to counterparts (19%). Similarly, elderly with co-morbidities (46%) were facing more functional impairment problems as compared to without co-morbidities (13%). The prevalence of functional disability in each IADL item is higher as the age increasing in our study. Among males, Literates and from APL families IADL limitation was higher. The elderly residing in and joint families and those with co-morbidities faced more functional limitation

The results of logistic regression analysis revealed that advancing age (70-79 years Odds ratio OR 1.14) for ADL and (60-69 years OR = 1.3) for IADL significantly predicted functional limitation. In the present study it seemed that being female (Odds Ratio (OR 2.5) being illiterate (OR: 2.61) were risk factors for ADL dependency among the subjects. Significant association was seen with elderly who having joint

family (OR: 16.41); reported co morbidities (OR: 6.53);, for IADL dependency(Table 2).

IADL limitation was significantly associated as age increasing, in males and having co-morbidities in the present study.

Table 2 Results of Logistic Regression analysis to show association of study variables with impaired functional status

Socio demographic variables	n	Persons having functional impairment (ADL) %	Adjusted odds ratio (95% CI)	Wald test (P-value)	Persons having functional impairment (IADL) %	Adjusted odds ratio (95% CI)	Wald test (P-Value)
Age							
60-69	134	74(55.22%)	0.08(0.01 – 0.68)	21.60 (<0.000)	106(79.10%)	1.30 (1.10-1.52)	10.39 (0.001)
70-79	51	48(94.12%)	1.14(0.11–11.86)		49(96.07%)	--	
>80	15	14(93.33%)	14.00		15(100%)	--	
Sex							
Female	124	89(71.77%)	2.54(1.72 - 3.76)	21.88 (<0.000)	96(77.41%)	0.01(0.003-0.112)	19.26 (<0.000)
Male	76	47(61.84%)	2.1		74(97.36%)	--	
Education							
Illiterate	148	107(72.29%)	2.61(1.82 – 3.74)	27.27 (<0.000)	124(83.78%)	1.26(0.33-4.84)	0.11 (0.73)
Literate	52	29(55.76%)	1.2		46(88.46%)	--	
Family							
Nuclear	85	50 (58.82%)	1.42	5.87 (0.05)	63 (74.11%)	16.73(1.35-206.60)	18.56 (<0.000)
Joint	104	77(74.03%)	1.99(1.07-3.69)		97 (93.26%)	16.41(4.44-60.59)	
Extended	11	9 (81.81%)	3.15(0.64-15.76)		10 (90.90%)	--	
SES							
No card	8	2 (25%)	0.14(0.02-0.71)	6.28 (0.04)	6 (75%)	0.47(0.03-6.05)	1.20 (0.54)
APL	9	5 (55.55%)	0.52(0.13-2.02)		8 (88.88%)	3.53(0.22-54.68)	
BPL	183	129(70.49%)	2.38		156 (85.24%)	--	
Co-morbidities							
Absent	109	64 (58.71%)	0.60(0.33-1.11)	19.81 (<0.000)	85 (77.98%)	0.76(0.35-1.67)	39.75 (<0.000)
Present	91	72 (79.12%)	2.76		85 (93.04%)	6.53	

DISCUSSION

This study describes the epidemiology of functional disability among elderly persons in urban area and its association with socio-demographic variables. The study population were elderly people aged 60 years and above residing in a urban area of Kurnool. Functional disability was defined as having disability in Activities of daily living (ADL), or Instrumental Activities of daily living (IADL). The prevalence of functional disability in each basic ADL item was between 6% and 29%. That of each IADL item ranged from 10.5% to 87%. The prevalence of functional disability among the elderly aged 60 years and above was estimated to be 68% for ADL and 85% for IADL. It was higher than the World Health Organization report. According to that 40% of the Indian elderly population has one or more of five ADL limitation.[8] The prevalence of ADL disability in the present study was higher to studies carried out in developed countries such as USA (15%) and Japan (20%).[9,10] Nigeria (28.3%), Brazil (40%), Malacca (24%).[11-13] and from other community-based studies from India.[14-17]

Advancing age was significantly associated with ADL limitation and the disability prevalence was higher among the females when compared to the males in the present study as seen in most of the other studies conducted in India.[18,19] Illiteracy and having co morbidities were also significantly associated with functional disability in our study. These findings are consistent with the findings of other population based studies where it was evident that prevalence of disability increased with co existing illness.[13,20,21] The prevalence of functional disability was found to be low among those elderly who lived with their spouse and children (58.82%) when compared to those living in joint (74.0%) or extended families (81.81%). This finding is also observed in the community based study conducted at hilly state of North India.[22] The percentage of functional disability was higher among BPL families (70.49%) than APL families(55.55%) in the present study similar to study conducted in Brazil.[12]

Similar findings were seen in study conducted at hilly state of North India.[22]

CONCLUSION

The prevalence of functional disability in each basic ADL item was between 6% and 29%, and that of each IADL item ranged from 10.5% to 87% among elderly people in Kurnool city. The study results also show that women, the advancing age, those with co-morbidities are at risk of disability and functional limitation.

Recommendations

India has launched the National Program for the Health Care for the Elderly. One of the objectives of this program is to provide an easy access to promotive, preventive, curative and rehabilitative services to the elderly through a community-based primary health care approach.[23] strengthen this in urban health care providers also.

Limitations

This study was involved only elderly people in urban community, excluding elders from institutions. In addition, the study design was cross-sectional which limits the scope for ascribing causality to any of the associated factors in the study.

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