Assessment of burden of dependency among elderly population in an urban slum

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Abstract

Introduction: Recent advancements in medical sciences have increased the longevity of life, which in turn has increased the geriatric problems and dependency on society. This study aimed towards assessing the burden of dependency of elderly also to find out association of dependency with socio-demographic variables.

Methodology: A cross sectional community based study was carried out among 246 elderly subjects from a slum area in Nagpur. House to house survey was conducted. Katz and Lawton scales for activities of daily living (ADL) and Instrumental activities of daily living (IADL) respectively were used to find out dependency among the subjects.

Results: Prevalence of dependency was found to be 27.03% and 33.3% depending on ADL and IADL scales respectively. ADL was associated with increasing age, male gender and unemployment/retirement, whereas IADL was associated with increasing age.

Conclusion: More than one fourth of elderly population is dependent on others for the basic activities of daily living and one third of them are dependent for instrumental activities of daily living.

Keywords: Gerontology, Geriatric Medicine, Geriatric Dependency, ADL, IADL.

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Introduction

Inventions in medical sciences and improved social conditions during past few decades have increased the life span of man.[1] Population ageing is a phenomenon that can no longer be ignored. It is both a celebration and challenge.[2] The effect has begun to be felt in India, with around 90 million elderly at present[3]. By 2050, the number is expected to increase to 315 million, which constitutes 20 per cent of the total population[4] Physical state of body deteriorates with advancement of age leading to physical impairment as well as disability in long-term, which results in dependency on others. The challenge in the 21st century is to delay the onset of disability and ensure optimal quality of life for older people at family, community and national level.[2]

Dependence, defined as 'the need for frequent human help or care beyond that habitually required by a healthy adult'.[5] Daily living dependence can be measured in the form of activities of daily living (ADL) and instrumental activities of daily living (IADL) most precisely. Family of the elderly people is most affected by these activities and most of the times these elderly people are abandoned owing to their increasing dependence on others. Dependency rates were found ranging from 7% to 39% in various studies in India on basis of ADL.[5,6,7] Dependence is a prevalent fact of our society which is yet to be refined and treated as threat to productivity of human and other resources in modern times.

Very few studies were conducted in slums of central India. This study was aimed towards assessing the prevalence of dependency among elderly in relation to activities of daily living (ADL) and instrumental activities of daily living (IADL) and also to study association between dependency and socio-demographic status of the elderly.

Materials and Methods

A community based cross –sectional study was carried out in the field practice area under the Urban Health Training Centre (UHTC) attached to the Department of Community Medicine, NKP Salve Institute of Medical Sciences & Research Center, Nagpur. The study subjects were the elderly people above 60 years of age in the selected field practice area of UHTC.

Jaitala is a slum area in the south-western side of the city of Nagpur. A total population of 30,000 is covered under Urban Health Training Centre (UHTC), Jaitala. The field practice area is divided into five slum areas. Out of which Ramabai Ambedkar Nagar was selected for the study. This area covers 600 houses with an approximate population of 3694. Elderly population in this area is 790 (21%). As per the report by the Ministry of Statistics and Program Implementation, Govt. of India, about 65 per cent of the aged had to depend on others for their day-to-day maintenance[8]. Based on p=0.65, d=0.05 and confidence level of 90%, sample size calculated was 246.[9]

After taking permission from the Institutional Ethical Committee (IEC), the study was started. List of houses of Ramabai Ambedkar Nagar was obtained from UHTC and every 3rd house was selected by systemic random sampling. If no elderly person was found in that house, next house was visited until a sample size of 246 was reached.

An informed consent was taken from the elderly people whose interview is to be taken. The elderly people were informed about the question format and explained the purpose of this research. Total privacy & secrecy of their name and data was promised to them before taking the consent. Detailed information regarding socio-demographic variables & dependency was entered in pre-designed and pre tested format. For activities of daily living (ADL), Katz scale[10] was used and for instrumental activities of daily living (IADL), Lawton and Brody scale[11] was used. The scoring was as per the scales with the questions asked independently for each section of the scale. Socio –economic status was calculated by using modified B.G. Prasad Scale. All data was entered in Microsoft Excel sheet and statistical analysis was done by using Proportions and Chi-square test for association of ADL and IADL with socio-demographic profile. Data was analyzed by using Epi-Info statistical software (version=3.5.4)[12].

Result

Socio demographic characteristics: The mean age of the respondents was 66.29±6.1036 years. 145 (58.94%) were females. Out of the total population 72.76% were married whereas 26.42% were widow or widower. In the present study, majority of the respondents were Hindus 126 (51.22%), followed by Buddhist 115 (46.75%).

Rate of literacy was found to be 66%. Rate of illiteracy was more among females (63.45% females were illiterate as compared to 40.59% males). Among the total respondents most of the people were working 147 (59.75%) followed by 77 (31.3%) were unemployed and only 22 (8.94%) were pensioners. Most of the respondents 16 5 (67.07%) lived in nuclear family whereas 42 (17.07%) & 39 (15.85%) were living in joint family and three generation family respectively. Out of the total respondents majority 107 (43.5%) were belonging to class V and 89 (36.18%) were belonging to class IV as per Modified B.G. Prasad scale for socio-economic status.

Dependency: It was observed that almost 225(91.46%) of the individual were able to manage having a bath and dress themselves independently while 21(8.54%) of the overall study population was dependent on their family members or attendants for having a bath or getting dressed. It was observed that about 28(11.38%) of the study subjects were not able to manage their toilet activities independently. In the study sample 44 (17.89%) were unable to move independently from one place to another i.e. they required help of some other person to assist them even from bed to chair. Around 39(15.85%) of the respondents were dependent on medical aids for basic physiological functions of continence i.e. they had incontinent bowels or bladders or both. 28(11.38%) population dependent for toileting.

According to Katz scale it is evident that 5 (2.03%) study participants were totally dependent in their physical activities of daily living with score of 0. Few people were partially dependent on others for one or more activities 52 (25.2%). While the remaining 189 (76.82%) were totally independent with a Katz score of 6. Most common type of dependence for instrumental activities of daily living was food preparation 100 (40.65%), house-keeping 100 (40.65%) followed by telephone use 93 (37.8%), problem of transportation 55 (22.36%). According to Lawton scale instrumental daily activities it is evident that 82 (33.3%) study participants were dependent on others for more than 4 instrumental activities of daily living, while 164 (69.4%) of the study subjects were independent on others with an IADL score of 5-8 [Table 1].

Table 1: ADL (Activities of daily living) & IADL (instrumental activities of daily living)

Functions		0 (Dependent)		1 (Independent)	
ADL	Bathing	21	8.54	225	91.46
	Dressing	21	8.54	225	91.46
	Toileting	28	11.38	218	88.62
	Transferring	44	17.89	202	82.11
	Continence	39	15.85	207	84.15
	Feeding	11	4.47	235	95.53
IADL	Ability to use telephone	93	37.8	153	62.2
	Shopping	42	17.07	204	82.93
	Food preparation	100	40.65	146	59.35
	House keeping	100	40.65	146	59.35
	Laundry	48	19.51	108	80.49
	Mode of transportation	55	22.36	191	77.64
	Responsibility for own medications	54	21.95	192	78.05
	Ability to handle finance	48	19.51	198	80.49

Association between ADL/IADL & socio-demographic factors:

Dependency was found to be more among older person aged 70 years and more was found to be satisfactorily significant (p=0.000) in case of ADLs. As age increases percentage of dependency increases. Dependency seemed to be more in males compared to females and this difference was found statistically significant (p=0.029). Occupation of the study subjects also found to be statistically significant (p=0.037) i.e. dependence was more in pensioners and unemployed rather than those who are working. No association was found between education, marital status, type of family, socio-economic status and ADL [Table 2].

Table 2: Association between ADL and socio-demographic variables

Socio-Demographic Variables		Totally Independent (Score=6)	Dependent (Score=0-5)	Statistical values
Age (in yrs)	60-65	94	7	χ^2=80.901; p=0.000
	65-70	60	16	
	70-75	22	18	
	75 & above	3	26	
Sex	Female	113	32	χ^2=4.757; p=0.029
	Male	66	35	
Occupation	Unskilled	113	34	χ^2=4.340; p=0.037
	Unemployed	53	24	
	Pensioner	13	9	

*Significant if <0.05

Total dependence for IADL was significantly higher in older age 75 years and above as compared to young old less than 75 (p=0.00001). Whereas, other factors like gender, education, occupation, marital status, type of family, socioeconomic status were not found to be statistically significant where IADL was considered [Table 3].

Table 3: Association between IADL and socio-demographic variables

Socio-Demographic Variables		Totally Independent (Score=5-8)	Dependent (Score=0-4)	Statistical values
Age (in yrs)	60-65	87	14	χ^2=18.911 p=0.000
	65-70	64	12	
	70-75	33	7	
	75 & above	12	17	

*significant if <0.05

Discussion

Maximum number of study respondents was belonging to age 60-69 years (41.06%) and female (41.06%) in this study. Feminization of elderly population is also seen by Ohri P et al in their study (52.5%).[2] According to NSS 52nd round, 63% of the elderly were illiterate in India[13] which was higher than in this study which showed that almost less than half (34.07%) of respondents were illiterate. The other studies which were consistent with these findings are those done by Padda et al[14] who reported 38.6% illiteracy at Amritsar and Leena et al[15] reported 45.1% illiteracy. It is observed in this study that illiteracy is higher among females (63.45%) than males (40.59%). This female illiteracy dominance was similar to study conducted by Leena et al[15]. This disparity in literacy status may be attributed to the area being urban slum with more educational coverage than rural India.

In this study, 59.75% were still working against those were at home (31.3%). This was contrary to the study conducted by Leena et al[15] where 18.7% were working people. High levels of working people may be due to people residing in slum area of city need more money for their day to day living. More than half of the respondents who were interviewed were from nuclear family (67.07%). Various studies including Leena et al[15] reported that there were only 33% were from a nuclear family on the contrary 56% were living in joint families. Similarly Padda et al[14], Singh et al[16] have also brought out similar findings. The higher prevalence of nuclear family could be because of urbanization and social migration of youngsters. Most of the elderly (36.18% & 43.5%) individuals belonged to lower socioeconomic class (class IV and class V respectively). These findings were similar to findings reported by Ohri et al[2]. This could be because of our study group belongs to slum area.

In present study, the mean age of the respondents was 66.29 years; whereas study conducted in west Bengal[7] reported that mean age was 71.61 years. A highly significant statistical association was found between ADL and age, sex, and occupation. IADL was associated with age. Difference in the independency between ADL and IADL may be because elderly people are unable to perform instrumental activities as far as advancing age is concerned. Majority of elderly (76.82%) were totally independent in their ADL which is in contrast to findings of a study conducted by Ohri P et al[2] as 93%.

In study of West Bengal[7], 92% independency was reported. However it is evident that percentage of independency decreases with the increase of age as the functional capacity decreases with advancing age. Study conducted by Ohri P et al[2] reported 4.3% ADL total dependency which was similar to our findings (2.03%).

In this study 33.3% elderly in our study were dependent on IADL while 67.4% were independent. Study carried by Goel PK et al[17] found 19.7% total dependence in IADL but only 7.3% was independent in their study. Similarly Ohri P et al[2] stated 19.5% dependence & 29.3% independence in their study.

Conclusion

Dependency was common among the elderly population under study. Prevalence of dependence with ADL and IADL was found to be 27.03% and 33.3% respectively. Dependence was found to be associated with age, sex and employment of elderly population.

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