

Physical Disabilities among the Rural Elderly: Identifying Surrogate Markers of Unmet Disability Care Needs

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Abstract: In the era of population ageing, accurate assessments of need for disability assistance are essential for effective planning of support services for the elderly: to assess the physical disabilities in Activities of Daily Living (ADL) among the elderly; to identify the unmet needs in physical disabilities among them and to identify the predictors of unmet needs in physical disabilities of elderly so that they can act as surrogate markers to identify those in need of the services. A cross sectional study and 305 elderly aged 60 years and above were selected from seven villages that were planned to be covered by PSG Geriatric Day Care Centre. Of the 305 elderly studied, 53.1% were disabled and 32.8% elders have unmet needs for their disability. The predictors of unmet needs are living alone elderly, aged >70 years, single (other than married), financially fully dependent elderly, those elderly had more number (level) of disability and elderly having more morbidity.

Key words: Elderly, physical disabilities, unmet needs, surrogate markers, quality, India

INTRODUCTION

In almost every country, the proportion of people aged >60 years is growing faster than any other age group as a result of both longer life expectancy and declining fertility rate. According to WHO estimates, the absolute number of the 60 years and above aged population in India will increase from 76.6 million in 2001-137 million by 2021 (Gowsami *et al.*, 2006). This population ageing can be seen as a success story for public health policies and for socioeconomic development but it also challenges society to adapt in order to maximize the health and functional capacity of older people as well as their social participation and security. Accurate assessments of need for disability assistance are essential for effective planning of support services for the elderly but unfortunately very little national data is available on type and acuity of need which was assessed by standard and validated tools. Numerous attempts have been made in India over the last few years to estimate the number of elderly who are disabled (Joshi *et al.*, 2003; Williams *et al.*, 1997). However, very few studies (Alam and Mukherjee, 2005) have been done to assess the extent to which those who are disabled but go without the assistance they need.

For a health care planner, it is important to do an assessment of needs and unmet needs of elderly within a defined community. However, in resource constrained settings this may not always be possible and so it is useful to identify predictors of unmet need so that those elders who need the service the most can be identified and reached more efficiently.

Objectives:

- To assess the physical disabilities in Activities of Daily Living (ADL) among the elderly in a rural community
- To identify the unmet needs in physical disabilities among them
- To identify the predictors of unmet needs in physical disabilities of elderly so that they can act as surrogate markers to identify those in need of the services

MATERIALS AND METHODS

This study is a cross sectional study and the study was conducted for a period of one year from July 2005 to June 2006. The elderly people aged 60 years and above

were selected from seven villages coming under the field practice area of PSG Rural Health centre that were planned to be covered by PSG Geriatric Day Care Centre. Based on the pilot study prevalence (23.7%), the sample size was calculated using the formula $n = (1.96)^2 pq/d^2$ where p is the expected prevalence (23.7%) and q is 76.3% (100-23.7). Taking the absolute precision as 5% with 95% CI, the sample size was calculated to be 278. Allowing for 20% non respondents, the required sample size was calculated to be 347 (p = 23.7%, q = 76.3% and d = 5). The elderly people from 7 villages were selected using the Probability Proportional to Size (PPS) sampling technique. About 42 were either non-cooperative or could not be contacted despite making 3 attempts to contact them. The remaining 305 elderly people were contacted and studied thus, forming the respondent rate of 87.9%. The survey questionnaire that was used contained certain socio-demographic details of the study population (gender, age, religion, marital status, educational status of the elderly, occupation, living arrangement, monthly income (personal and family), financial status and the availability of care provider), the Stanford health assessment questionnaire and morbidity assessment tool. Stanford health assessment questionnaire is a validated tool used for assessing disability in Activities of Daily Living (ADL). It was translated in Tamil and validated by MAPI Research Institute, France. Subjects with disability/disabilities were assessed for their unmet needs with the following definition. An elderly who receives no human assistance does not use an assistive device but reports needing help for their disability. Elders with unmet needs in any one of the physical disabilities in ADL of 8 categories of were considered as having an unmet need in physical disability. Subjects were clinically evaluated for morbidity assessment by their reported illness (existing diagnosis), medications held by the subjects, history and clinical examination. Multivariate logistic regression analysis were performed to identify predictors of unmet needs.

RESULTS AND DISCUSSION

Table 1 shows that out of 305 elderly who were studied, a major proportions of elderly (60%) were between age group of 60-69 years. About 143 (46.9%) were male and 162 (53.1%) were female. Most of the elderly (68%) were below mean family monthly income (Rs. 4350) of the families in the survey area and a majority (67%) the elderly are Illiterate. Nearly half (47%) of the elderly were fully financially dependent on others.

Table 2 shows that 162 (53.1%) elderly had physical disability in one or more ADL categories. Also, more women compared with similarly aged men had disabilities

Table 1: Socio-demographic details of the study population

Socio-demographic characteristics	Sample size (n = 305)		
	Male (143) No. (%)	Female (162) No. (%)	Total (305) No. (%)
Age group (years)			
60-69	94 (65.7)	89 (54.9)	183 (60.0)
70 and above	49 (34.3)	73 (45.1)	122 (40.0)
Marital status			
Married	99 (69.2)	61 (37.6)	160 (52.4)
Others	44 (30.8)	101 (6.3)	145 (47.5)
Educational status			
Literate	73 (51.0)	28 (17.3)	101 (33.1)
Illiterate	70 (49.0)	134 (82.7)	204 (66.9)
Living arrangements			
Alone	9 (6.3)	18 (11.1)	27 (8.9)
With spouse	95 (66.4)	56 (34.6)	151 (49.5)
With other (s)	39 (27.3)	88 (54.3)	127 (41.6)
Financial status			
Fully dependent to others	39 (27.3)	103 (63.6)	142 (46.6)
Partially dependent	23 (16.1)	31 (19.1)	54 (17.7)
Independent	81 (56.6)	28 (17.3)	109 (35.7)
Monthly family income			
Low (<Rs. 4350)	88 (61.5)	119 (73.5)	207 (67.9)
High (≥Rs. 4350)	55 (38.5)	43 (26.5)	98 (32.1)

Table 2: Distribution of the elderly by various disabilities in ADL

Category	Number (%)		
	Male (n = 143)	Female (n = 162)	Total (n = 305)
Walking	25 (17.5)	42 (25.9)	67 (22.0)
Dressing and grooming	28 (19.6)	36 (22.2)	64 (21.0)
Arising	24 (16.8)	39 (24.1)	63 (20.7)
Reach	19 (13.3)	40 (24.7)*	59 (19.3)
Grip	22 (15.4)	31 (19.1)	53 (17.4)
Eating	21 (14.7)	30 (18.5)	51 (16.7)
Hygiene	13 (9.1)	24 (14.8)	37 (12.1)
Other***	19 (13.3)	49 (30.2)**	68 (22.3)
One or more activity limitation	59 (41.3)	103 (63.6)	162 (53.1)**

*p<0.01 by Chi square (χ^2) test **p<0.001 by Chi square (χ^2) test; ***Going to the shop, able to use personal and public transport, household chores

Table 3: Unmet needs in physical disabilities (n = 305)

Category	Male (n = 143)	Female (n = 162)	Total (n = 305)
Dressing and grooming	9 (6.3)	21 (13.0)*	30 (9.8)
Arising	12 (8.4)	30 (18.5)*	42 (13.8)
Eating	12 (8.4)	18 (11.1)	30 (9.8)
Walking	9 (6.3)	15 (9.3)	24 (7.9)
Hygiene	1 (0.7)	12 (7.4)*	13 (4.3)
Reach	10 (7.0)	15 (9.3)	25 (8.2)
Grip	1 (0.7)	3 (1.9)	4 (1.3)
Others***	13 (9.1)	24 (14.8)	37 (12.1)
Unmet need in one or more activity limitation	31 (21.7)	69 (42.6)**	100 (32.8)

*p<0.05 by Chi square (χ^2) test **p<0.001 by Chi square (χ^2) test; ***Going to the shop, able to use personal and public transport, household chores

(overall 63.6 vs. 41.3%, p<0.001). These gender differences were also significant in 2 of the 8 categories of physical function (reach 24.7 vs. 13.3%, p<0.01 and other activities 30.2 vs. 13.3%, p<0.001).

Table 3 shows that nearly one third (32.8%) of elderly have unmet need for one or more physical disabilities. The

Table 4: Predictors of unmet needs in physical disabilities

Variables	Number of elderly people	Number of elderly with Unmet need no. (%)	Level of significance (p-value)
Sex			
Male	143	31 (21.7)	p = 0.055
Female	162	69 (42.6)	
Age (in years)			
<70	183	30 (16.4)	p = 0.018
70 and above	122	70 (57.4)	
Educational status			
Literate (non-formal schooling and others)	101	19 (18.8)	p = 0.305
Illiterate	204	81 (39.7)	
Marital status			
Married	160	39 (24.4)	p = 0.024
Others	145	61 (42.1)	
Financial status			
Others (partially dependent and independent)	163	22 (13.5)	p<0.001
Fully dependant	142	78 (54.9)	
Living arrangement			
Alone	27	18 (66.7)	p = 0.001
Living with other (s)	278	82 (29.5)	
Monthly family income			
≥Rs. 4350 (High)	98	15 (15.3)	p = 0.697
<Rs. 4350 (Low)	207	85 (41.0)	
Elder have carer			
Yes	106	24 (22.6)	p = 0.062
No	199	76 (38.2)	
Cognitive impairment			
No	193	49 (25.4)	p = 0.585
Yes	112	51 (45.5)	
Number of morbidity			
<3	150	23 (15.3)	p = 0.002
4-6	128	59 (46.1)	
>6	27	18 (66.7)	
No. of physical disability			
<3	226	46 (20.4)	p = 0.005
3 and above	79	54 (68.4)	

highest unmet need among the limitation in activity of daily living was for arising (13.8%). Like the pattern observed for disabilities, unmet needs were also significantly higher among women as compared to men (42.6 vs. 21.7%, p<0.001). Similar gender differences in unmet needs also were significantly higher in females in 3 out of the 8 categories of activities of daily living (dressing and grooming, arising and hygiene).

Table 4 shows that the elders with the following characteristics had significantly more unmet need for their disability: respondents who lived alone, aged >70 years, single (other than married), financially fully dependent elderly, those elderly had more number (level) of disability and elderly having more morbidity. The characteristics are considered as predictors of unmet need and those elderly who need the care services most. The prevalence of unmet need did not significantly vary by sex, educational status, monthly income, cognitive impairment and care provider status.

Overall 53% of elderly are disabled in one or more of their physical activities and these findings are similar to

study by Venkatarao *et al.* (2005). In their study (Venkatarao *et al.*, 2005), they found 58% of elderly people had at least one disability in their Activities of Daily Living (ADL) and instrumental activities of daily living. Another study (Joshi *et al.*, 2003) found that a total of 87.5% of elderly had minimal to severe disabilities. The present study found that women were having more disability (63.6 vs. 41.3%) than men. These findings are consistent with other studies (Alam and Mukherjee, 2005; Murtagh and Hubert, 2004; Melzer *et al.*, 1999). In their study the gender difference was significant in physical disabilities (52 vs. 37%). Consistent with other studies (Alam and Mukherjee, 2005; Venkatarao *et al.*, 2005; Melzer *et al.*, 1999) the study also shows that disability occurrence was more with increasing age. The number of disabilities and severity of disabilities increases with age. The prevalence of unmet needs in disabilities in this study was 33%. This finding is similar to the study done by another study (Alam and Mukherjee, 2005) and is in contrast to the several studies in western countries (Alam and Mukherjee, 2005; Venkatarao *et al.*, 2005). The prevalence observed in their study much lower than the study. This can be due to availability of formal care provider to assist the elderly for their activities of daily living. Also the use of equipments/aids were much high in their study. In the study, researchers could not find many aids other than cane/walking stick. The present study found that elderly who lived alone were four times as likely as those who lived with others to report unmet needs for their disability. These findings are consistent with several researchers (Otero *et al.*, 2003; Desai *et al.*, 2001; Williams *et al.*, 1997). This study shows that living alone is one of the best predictors of unmet need and future formal care services.

CONCLUSION

There is a need for a new policy initiative focusing on strengthening of community based rehabilitation services. The predictors could act as surrogate markers which are simple enough to be used by primary care workers to plan and provide quality care services to the rural elderly.

RECOMMENDATIONS

Since, it is clear that large number of needs of the disabled are unmet, there is a need for a new policy initiative focusing on strengthening of community based rehabilitation services (family oriented programs, day care centers), support for family caregivers and social support

interventions. Availability of tools like the Stanford health assessment questionnaire in all the major Indian languages to identify functional disability and unmet needs will provide an opportunity to do a comparable study in different parts of India. Finally this study identified broad socio-demographic and health status factors (predictors of unmet needs) such as living alone elderly, aged >70 years, single (other than married), financially fully dependent elderly, those elderly had more number (level) of disability and elderly having more morbidity. These predictors could act as surrogate markers which are simple enough to be used by primary care workers to plan and provide quality care services to the rural elderly who need it most without doing needs assessment study that use tools that are complex, require medical expertise and are time consuming.

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