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Full Length Research Paper

Disabilities, unmet needs and social networking of elderly in Pune

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Disability rate in elderly is much higher. The rising needs of long term care and severity of disabilities may be reduced if disabilities in elderly are identified as early as possible. This study aimed to identify elderly with disabilities and to study their socio-demographic factors, unmet needs and social networking. A community based cross sectional study was carried out among the elderly in rural field practice area of one of the medical colleges in Pune during 1st June- 30th July 2012. Using a convenient sampling, elderly were interviewed to get socio-demographic variables. BRIGHT questionnaire was used to detect disability and unmet needs. Social networking was assessed using social network index questionnaire developed by Cohen et al. 23.1% (80/346) had disabilities according to BRIGHT questionnaire. 58.75% (47/80) of disabled were diagnosed of chronic disease. 41.25% (33/80) disabled had not consulted the physician for their disability, considered as part and parcel of aging. 34% (16/47) of disabled diagnosed with chronic disease were taking treatment appropriately. Factors associated with disabilities were rural residence, unemployment, presence of diagnosed chronic disease. 51.4% (178/346) had poor social networking, and it was associated with presence of disability and diagnosed chronic conditions. There is a need to identify hidden burden of disabilities and unmet needs among elderly to decrease magnitude of disabilities. Periodic use of tools like BRIGHT questionnaire by health workers, relatives or by elderly themselves may serve the purpose. Social networking of elderly needs to be re-enforced.

Key word: Disability, elderly, BRIGHT questionnaire.

INTTRODUCTION

The world population is ageing rapidly. Proportion of the world's population over 60 years will double from about 11 to 22% between 2000 and 2050 (http://www.who.int/ageing/about/facts/en/index.html). The absolute number of people aged 60 years and over is expected to increase from 605 million to 2 billion over the same period. Low and middle-income countries will experience the most rapid and dramatic demographic change. In the next one year, the population of elderly people in 'young India' is expected to reach the 10-cr (100-million) mark. And by 2050, the figure will reach 32.6 crore (326 m) (http://www.searo.who.int/india/mediacentre/events/world_health_day/WHD2012_Background_Note.). It will impose a greater burden on already out-stretched health

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services in developing countries including India (Preventive medicine in obstetrics, 2013).

Elderly are more prone for disabilities. Disability rate in elderly is much higher than other age groups and it is an important public health problem. Disabilities may be due to limited mobility, or other physical or mental health problems. These are often taken as part and parcel of ageing that need not to be consulted with physician. The number of elderly who are no longer able to take care of themselves due to disabilities is forecast to quadruple by 2050 in developing countries. Magnitude of disabilities in elderly is projected to increase in future due to change in age structure of the population, increase in life expectancy and increasing trend of non-communicable diseases. It points to rising need for long-term care which can include assisted living, home nursing, community care and residential care and/or long stays in hospitals.

These needs and severity of disabilities may be reduced if disabilities are identified as early as possible in elderly. Proper management of underlying causes of disabilities at the earliest may help elderly to regain independence in their life. Thus, there is a need to identify disabled elderly earlier in their life (http://www.who.int/world-health-day/2012/en/).

In India, accessibility, availability and utilization of rehabilitation services for elderly and its cost-effectiveness are the major issues to be considered. Research on disability burden among elderly, appropriate intervention strategies and their implementation to the present context in India is a big challenge (Kumar et al., 2012).

Preclinical disability among elderly can be targeted by risk assessment, screening and case-finding (http://www.yumpu.com/en/document/view/14092814/primary-care-case-finding-tool-bright-questionnaire). Hence, the present study assessed the magnitude of disability among elderly using BRIGHT QUESTIONNAIRE, a case finding tool for disability in elderly with the research question that can such tools be introduced to grass root level workers or to elderly themselves in order to assess and manage disability at the earliest. It will also help to identify unmet needs of elderly. The study also aimed to assess risk factors for disabilities among elderly and their social relationships (http://gpnz.org.nz/wp-content/uploads/Brisk-Risk-Identification-Tool-Ngaire-Kerse.pdf).

MATERIALS AND METHODS

A community based cross-sectional study was carried out in rural and urban field practice area of Padmashree Dr D Y Patil Medical College, Pimpri during 1st June- 30th July 2012. It caters to the rural population of 37,496 in Alandi and 1,10,000 urban population at Bhosari. Elderly were defined as persons aged 60 years or more.

Considering the prevalence of disability among geriatric people as 23% from previous studies, at 95% confidence limit and allowable error 4.5%, the sample size was calculated using Epi Info Version 3.5.1. It came out to be 336. Adding 10% non- response, the total number came out to be 369, making the round figure 370 study subjects.

Households were selected by convenient sampling to get required number of study subjects. Inclusion criteria were elderly, aged $\geq$ 60 years, willing to participate in the study. Exclusion criteria were study subjects not willing to participate, seriously ill, not present at home during the visit. Where selected study subject was not able to speak, information was obtained from near relative/ other person present in the house.

After taking verbal consent, selected study subjects were interviewed by using a pre-tested semi-structured proforma, BRIGHT questionnaire and WHO's social network index questionnaire (Cohen et al., 1997). Proforma included socio-demographic and personal characteristics like age, sex, religion, level of education, past and present occupation, per capita income etc.

BRIGHT *(Brief Risk Identification of Geriatric Health Tool)* questionnaire is designed to find cases of older people with disabilities (case-finding) living in the community (Table 1) by Faculty of Medical and health sciences, University of Auckland. It is validated to a sensitivity of 0.86 and specificity of 0.86 observed for a score of 3 or more on the questionnaire in relationship to the IADL CAP (*instrumental activities of daily living clinical assessment protocol*) which is taken as gold standard for assessment of disability (Kerse et al., 2008).

BRIGHT questionnaire is designed and proved useful to find cases of older people with disabilities (case-finding) living in the community. It is excellent to rule them out of the need for further assessment. This tool may be useful as part of an intervention process to detect unmet needs and to improve systematic surveillance of primary care populations (http://gpnz.org.nz/wp-content/uploads/Brisk-Risk-Identification-Tool-Ngaire-Kerse.pdf; Kerse et al., 2008).

Responses on the BRIGHT questionnaire (Table 1) were summed as one point per response indicating need; that is '1' for 'no' on question 1 and '1' for 'yes' on questions 2–11. BRIGHT QUESTIONNAIRE score 3 or more indicated disability.

Social networking of study subjects was assessed by Social Network Index (SNI) questionnaire (refined according to study population) (Table 2) developed by Cohen to assess social relationships of elderly (Cohen et al., 1997). Responses were scored with minimum score as 1 and maximum as 52. If person met >20 people in two weeks, it was taken as good social interaction. It was approximated to the score of 20 as per SNI questionnaire. Hence, score of 0-20 was taken as poor social interaction, while > 20 was taken as poor social interaction good social interaction.

Table 1. Gender-wise Disability as per residence.

Residence	Gender	Disability		Total
		Yes	No	
Rural	Female	23 (19.5)	95 (80.5)	118
	Male	16 (12.5)	112 (87.5)	128
	Total	39 (15.9)	207 (84.1)	246
Urban	Female	19 (38.8)	30 (61.2)	49
	Male	22 (43.1)	29 (56.9)	51
	Total	41 (41.0)	59 (59.0)	100

Table 2. Associated factors with disability.

Associated factors		Disability		P value	OR	95% CI
		Yes	No			
Gender	Female	42 (25.1)	125 (74.9)	0.387		
	Male	38 (21.2)	141 (78.8)			
Residence	Rural	39 (15.9)	207 (84.1)	<0.001	0.387	0.267- 0.561
	Urban	41 (41)	59 (59)			
Marital status	Married and spouse living	41 (32.5)	85 (67.5)	0.002	1.836	1.256- 2.684
	Single	39 (17.7)	181 (82.3)			
Age	60-69	52 (20.8)	198 (79.2)	0.098		
	≥70	28 (29.2)	68 (70.8)			
Diagnosed chronic disease	Present	47 (30.1)	109 (69.9)	0.005	1.735	1.173- 2.566
	Absent	33 (17.4)	157 (82.6)			
Social networking	Poor	64(24.6)	196 (75.4)	0.252		
	Good	16 (18.6)	70 (81.4)			
Employment	Unemployed	53 (28.0)	136 (72.0)	0.017	1.631	1.080- 2.463
	Employed	27 (17.2)	130 (82.8)			
Literacy	Illiterate	48 (24.4)	149 (75.6)	0.528		
	Literate	32 (21.5)	117 (78.5)			
Socio-economic status	1,2,3	36 (28.6)	90 (71.4)	0.069	1.429	0.975- 2.094
	4,5	44 (20)	176 (80)			

The study was executed at the same time in both, rural and urban areas and continued till required study subjects were interviewed. Identified disabled elderly were referred to Dr D Y Patil Medical College, Hospital and research centre for further management.

However, data were analysed using SPSS version 15.0 developed by IBM, USA, November 2006. As it was, qualitative data frequencies and proportions were enlisted and Pearson's Chi square test, Fisher's exact test or Likelihood ratio test were used as tests of significance wherever appropriate. Odds ratio with 95% confidence interval were found to be significantly

associated.

RESULTS

Sociodemographic characteristics

Out of 370 subjects enrolled, 348 (94.05%) could be contacted, 2 refused to participate in the study. So, analysis was done for 346 study subjects. 48.3% (167/346) were females, 51.7% (179/346) were males. 36.4% (126/346) were living with spouse, 63.6% (220/346) were single.

71.1% (246/346) were from rural residence, 28.9% (100/346) were urban. 72.25% (250/346) were 60-69 year old, 23.12% (80/346) were 70-79 year old, 2.89% (10/346) were $\geq$ 80 year old.

44.22% (153/346) were illiterate, 0.87% (3/346) were graduate and 2.02% (7/346) completed (11^{th} 12^{th}) junior college. Others attended any of primary or secondary school.

In the past, 34.4% (119/346) were labourers, 33.8% (117/346) were farmers, 7.8% (27/346) were servicemen, 13% (45/346) were housewives, 3.76% (13/346) were unemployed. Others were self employed as tailors, shop-keepers etc.

Presently,15.9% (55/346) were labourers 23.4% (81/346) were farmers service, 2.3% (8/346)17.6% (61/346) were housewives, 37% (128/346) were unemployed and 6.1% (21/346) were engaged in some sort of self employment currently as tailors, shop-keepers etc. 0.58% (2/346) cases were receiving pension after retirement.

A total of 37% (128/346) were presently unemployed, out of which 82.03% (105/128) became unemployed due to old age, 58.10% (61/105) were females. 61/167 females left job due to old age, while 70/179 males became unemployed due to old age.

Mean family income was 8357 Rs (SD= $\pm$6469) per month. Majority of cases belonged to class 4 and 5 SEC according to modified proposed Prasad's classification for 2012.

Chronic diseased conditions

While 54.9% (190/346) had no chronic disease detected, 45.09% (156/346) had diagnosed chronic disease/ diseases. 14.5% (50/346) had arthritis, 9.5% (33/346) had hypertension, 8.1% (28/346) had diabetes, 5.8% (20/346) had asthma.1.4% (5/346) had low vision, 0.9% (3/ 346) had weakness in lower limbs. 73.72% (115/156) of elderly with chronic disorders were taking regular treatment, 28.70% (33/115) being disabled. 33/50 arthritis, 30/33 HT, 21/28 DM, 13/20 asthmatics, 9/10 backache were on regular treatment for their chronic illness. Most of them were being treated from GHF. 30.1% (47/156) with chronic disorder were disabled according to BRIGHT questionnaire.

Disability

Mean score of BRIGHT Q was 1.41 ($\pm$ 1.613) with range 7 (1-7). 23.1% (80/346) had disabilities according to BRIGHT questionnaire. Table 1 shows Gender-wise distribution of Disability as per residence.

Factors associated with disabilities were rural residence, unemployment, presence of diagnosed chronic disease, marital status as single (Table 2). Gender, age, literacy and socio-economic status were not associated with disabilities.

Unmet needs identified

While 58.75% (47/80) of disabled diagnosed chronic disease, 41.25% (33/80) disabled had not consulted physician for their disability, considered as part and parcel of aging. 34% (16/47) of disabled diagnosed with chronic disease were taking treatment appropriately. Table 3 shows responses to items in BRIGHT q and whether physician's consultation was obtained for that or not.

However, 52.9% (27/51) elderly who had a fall within last 3 months, 52.6% (10/19) with difficulty in performing day to day activities, 39.2% (20/51) who bothered by feeling down, depressed or hopeless, 30.1% (28/93) with short of breath walking across the room were yet to consult physician for these problems.

53.2%(184/346) elderly were not satisfied with GHF, the major reasons noted were long waiting period, low efficacy and no politeness among health care workers. 46.8% (162/346) elderly were satisfied to some extent with services available at GHF, 9.2% (32/346) pointed out that GHF is cheap but it is time consuming. 29.2% (100/346) did not often visit PHF. 17.9% (62/ 346) were more comfortable with PHF, the major reasons identified is that PHF is less time consuming, and that they are used to politeness, efficacy. 39.9% (138/346) opined that charitable health facility is better than PHF.

Social networking

51.4% (178/346) had poor social networking, 48.6% (168/346) had good social networking. Poor social networking was associated with presence of disability and diagnosed chronic conditions (Table 4), but not associated with any other socio-demographic factor. 6.6% (23/346) were engaged in recreational activities like worship, walk and gossiping with friends at least once in two weeks regularly. While, 93.4% (323/346) did not engage in any social activities.

DISCUSSION

In this study, 346 study subjects were analysed, despite the fact that the elderly in some households could not be contacted, the objective of the study is not affected as

Table 3. Responses to items in BRIGHT questionnaire and if consulted with physician if help is needed.

Items in BRIGHT questionnaire	Yes (n, %)	Consulted to physician		No (n,%)
		Yes	No	
Do you need someone to help you get around indoors?	120(34.7)	76 (63.3)	44 (36.7)	226 (65.3)
Have you tripped or fallen?	51 (14.7)	24 (47.1)	27 (52.9)	295 (85.3)
Do you get short of breath walking across the room?	93 (26.9)	65 (69.9)	28 (30.1)	253 (73.1)
Do you usually need someone to help you bathe or shower?	21(6.1)	12 (57.1)	9 (42.9)	325 (93.9)
Do you usually need someone to help you comb your hair, brush your teeth, shave, apply makeup, or wash/dry your face and hands?	19(5.5)	9 (47.4)	10 (52.6)	327 (94.5)
Do you usually need someone to help you dress your lower body?	24(6.9)	14 (58.3)	10 (41.7)	322 (93.1)
Have you been bothered by feeling down, depressed or hopeless?	51 (14.7)	31 (60.8)	20 (39.2)	295 (85.3)
Do you have any difficulties making decisions about everyday activities?	23(6.6)	17 (73.9)	6 (26.1)	323 (93.4)
Do you have memory problems that make everyday activities difficult?	25(7.2)	14 (56.0)	11 (44.0)	321 (92.8)
Do you usually need any help with ordinary housework?	60 (17.3)	32 (53.3)	28 (46.7)	286 (82.7)

Table 4. Poor social networking and associated factors.

Associated factor		Social networking		Total	P value	OR	95% CI
		Poor	Good				
Disability	Yes	51 (63.8)	29 (36.3)	80 (100)			
	No	127 (47.7)	139 (52.3)	266 (100)	0.012	1.335	1.085- 1.643
Chronic disease	Yes	97 (62.2)	59 (37.8)	156 (100)			
	No	81 (42.6)	109 (57.4)	190 (100)	<0.001	1.459	1.188- 1.791

sample size of 336 was sufficient for 4.5% allowable error. We pre-determined sample size of 370 after adding 10% non-response rate which after execution of the study became 6.49%.

This study helped to identify the hidden burden of disabilities, undiagnosed chronic diseases and unmet needs of elderly which could be managed at our institution.

The study identified 23.1% (80/346) elderly as disabled using BRIGHT questionnaire tool. Identified disabled were referred to Padmashree Dr D Y Patil Medical College and Hospital for further management. This is quiet higher than what reported in situation analysis of elderly by Government of India in 2010. It reports that about 64 per 1000 and 55/1000 elderly rural and urban areas, respectively suffer from disabilities (Jayalakshmi et al., 2011). Though, disabilities were more in $\geq$ 70 year old elderly, as compared to 60-70 year old elderly, (29.2% vs 20.8%), relationship was not significant in this study. Other study in suburb of Bangalore reported 27% of study subjects with mild disability and 31% had higher level of disability as per ADL scores (Krishnamachari et al., 2010).

Many studies especially from rural area report that gender as female, age >70 and illiteracy to have positive association with disability (Mandal et al., 2009; Mandal et al., 2010). This study could not find any of such association. Similar to the study's findings, study in suburb of Bengalore, Gender, education, and income did not influence disability, but association of disabilities with current health status was not reported. 85% study subjects had current medical problems (Krishnamachari et al., 201; Williamson and Fried, 19960).

Further, association of chronic diseases with disabilities was determined. This study could not find urban advantage among elderly for disabilities as shown in other studies. This advantage is mainly due to higher socio-economic status (Kaneda and Zimmer, 2010; Beydoun and Popkin, 2005). But, rural and urban elderly in our study were socio-economically comparable (p=0.727). It was due to population catered by urban health training centre (UHTC) of under study that contained a semi-urban area, which was not representative of whole urban population. Yet, semi-urban areas in this study had more disabled elderly than rural area.

The study of elderly with chronic diseases in west Bengal reported 17.47% (80/458) study subjects: disabled and disabilities were more, > 70 year old, females and illiterate. Activities of Daily living scale were

used to ascertain disabilities while BRIGHT questionnaire was used in this study (Mandal et al., 2010).

Disability can be viewed as a stage in the course of chronic disease processes that will ultimately lead to death. It is possible that the same mechanisms that enable older adults to reduce the disability associated with chronic diseases, such as greater resilience, also allow them to prolong life in the face of declining health (Carlos et al., 2002).

14.7% (51/ 346) showed symptoms of psychological morbidities such as feeling down, depressed or hopeless and 6.6% (23/346) had difficulties in making decisions in everyday activities'. 20/51 and 6/23 respectively were yet to consult physicians for these symptoms.

Old age dependency is increasing as a result of change in age structure of population. Hidden and unidentified burden of disabilities may contribute to increased and earlier onset of unemployment in elderly. As fertility is declining and life expectancy is increasing, shift from child dependency to old age dependency is observed (Preventive medicine in obstetrics, 2013). The present study also report increase in unemployment due to old age and more proportion of females became unemployed due to old age (58%). 45.4% elderly in our study were working for livelihood while, disabilities among elderly were associated with unemployment in our study.

As per NSSO survey in India, nearly 40% of persons aged 60 years and above were working. 66 and 23% elderly men and women in rural area were still working, while in urban area 39 and 7% elderly men and women were working. Thus, old age dependency was more in rural than urban area (Jayalakshmi et al., 2011).

Social relationships affect a range of health outcomes, including mental health, physical health, health habits and mortality risk. Socially active lifestyle is associated with better health and longer life (Debra and Jennifer, 2010). Losses in physical function and self-care capacities in elderly lead to reduced social interactions. Carlos et al. (2002) reported socially active persons had considerably lower levels of disability than their counterparts. In our study too, disabled elderly as well as elderly with diagnosed chronic conditions had poor social interactions. Extent of social relationship may be as much a consequence of disability as it is a cause. Social engagement may enable older persons to help maintain their functional abilities to some extent.

As secondary outcome, study highlights general dissatisfaction of elderly for GHF over PHF and points to need of establishment of specialised geriatric clinics with geriatric counselling cetres. They can also identify elderly with disability at the earliest and can also help them to cope up with problems of ageing.

Participation in recreational activities unrelated to fitness increases survival and has other positive health effects for older adults (Fabrigoule et al., 1995), but very few (6.6%) elderly in our study had recreational activities at least once in two weeks.

Fundamentally, case finding of geriatric disability need to improve. About 65% of elderly depend on others for day to day activities and it is taken as part and parcel of ageing, situation is even worse for elderly females as only 14 to 17% of them being economically independent as compared to elderly males, 51-56% are (Jayalakshmi et al., 2011). Elderly in our study who depended on others for different activities were 6.1% for bathing, 5.5% for combing, brushing teeth, washing hands; 6.9% for dressing. Large proportion of them had not consulted to physicians for their disabilities (Table 3).

In this study, BRIGHT questionnaire was used to assess disability. It considers dependency for day to day activities. It is useful to identify community-dwelling older people with disability, and excellent to rule them out of needing further assessment (Fabrigoule et al., 1995). It can be used as part of an intervention process to detect unmet needs and to improve systematic surveillance of elderly primary care populations of the country (Kerse et al., 2008).

Unmet needs identified were improved case-finding of disabilities among elderly and improved geriatric care. Operational research is required to leverage life skills of elderly for betterment of new generation, so that they will feel needed by community.

Conclusively, BRIGHT questionnaire can be used as screening tool by grass root level workers. Well-educated elderly can be trained for periodical self assessment, as well as family member and near relative in determining the disability status of elderly using such kind of tool.

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