ORIGINAL ARTICLE

Epidemiological Evaluation of Activities of Daily Living among disabled population in a rural area of Uttarakhand

Shilpee Chaudhary[1], Shaili Vyas[2], Ashok Kumar Srivastava[3], Neha Sharma[4]

[1]Ex-Resident, Department of Community Medicine, Himalayan Institute of Medical Sciences, Swami Rama Nagar, Dehradun; [2]Associate Professor, Department of Community Medicine, Himalayan Institute of Medical Sciences, Swami Rama Nagar, Dehradun; [3]Professor, Department of Community Medicine, Himalayan Institute of Medical Sciences, Swami Rama Nagar, Dehradun; [4]Assistant Professor, Department of Community Medicine, Himalayan Institute of Medical Sciences, Swami Rama Nagar, Dehradun

| Abstract | Introduction | Methodology | Results | Conclusion | References | Citation | Tables / Figures |

Corresponding Author

Corresponding Author: Dr Shaili Vyas, Associate Professor, Department of Community Medicine Himalayan Institute of Medical Sciences Swami Rama Nagar, Dehradun, Uttarakhand - 248016.
E Mail ID: shailivyas7@gmail.com

Citation

Article Cycle

Abstract

Introduction- In India, Disability remains about the able-bodied. The disabled person frequently describes limitations in their activities of daily living (ADL). Although few studies have discussed about ADL among disabled but in rural setting it is still unexplored. Thus the objective of the study was to assess the dependency of disabled persons according to ADL. And to find the association between each ADL item with the socio-demographic findings. **Methodology**- A cross-sectional study compromising of 2600 study participants aged 5-59 years were recruited through multi-stage random sampling technique in a rural area of district Dehradun. Chi-square and Fischer exact test analysis was used to analyse the association among activities of daily living (ADL) with socio-demographic variables. **Result**- The overall prevalence of disability among both male and females was 2.3 %. 20-39 years age-group was mostly affected. Among ADL most of the disabled were fully dependent on others for grooming & bathing. Age, religion, education and occupation were statistically significant with the ADL. **Conclusion**- Better health policies, Training of family members to provide support to disabled persons and Promotion of home-based occupations should be executed. To improve ADL and QOL of disabled people education, employment, non-discrimination, vocational training and rehabilitative services should be strengthened.

Keywords

Barthel Index; Disability; Activities of Daily Living(ADL)

Introduction

Disability" is one of the foremost public health problem not only in industrialized nations but in evolving countries as well and has profound effect on community from social, cultural and economic perspective.(1) Disability is an umbrella term that covers impairments, activity limitations, and participation restrictions, which are otherwise expected for that age/sex. (2) Estimation says that around 10% of the Global population experiences some form of impairment or disability. (3) The

prevalence of disability in South-east Asia, varies from 1.5 – 21.3% of the total population". Despite the rise in frequency of disability globally, due to various reasons, not much consideration has been paid to its calculation, administration and avoidance (4) Disability is a dynamic process in which people develop disability & recover from it almost simultaneously. Nevertheless the functional status is still a strong predictor of ADL Disability in later life. One of the crucial menace for independency in disabled people is functional decline which can further progress to functional limitations and eventually can disrupt the activities of daily living (ADL).(5)Most of the time, instead of using a multifactorial approach, the intervention is focused on a single domain of ADL disability. As there is involvement of multiple domains for the presence of ADL disability, knowledge on the independent effect of predictors and impact of the individual domains can help target preventive strategies.(5) As studies on prevalence of disabilities in India, particularly, in the rural areas are limited and there is meagre literature available on "Activities of Daily Living" among the disabled population, so the present study was planned to gather information from community which can serve as a valuable tool for evolving community – based reintegration programs for the disabled people.

Aims & Objectives

1. To assess the dependency of disabled persons according to the Activities of Daily Living.
2. To find out the association between the socio-demographic variables with the dependency of activities of daily living

Material & Methods

It is a Community based Cross-Sectional study conducted in the Rural area of district Dehradun for a period of One year (April 2017- March 2018). Ethical clearance was taken from the University's Ethical committee prior to the initiation of the study. Multistage random sampling technique was used Sample size was calculated Taking the prevalence of disability to be 15% (as per World Health Survey, 2011) (6) Relative allowable error as 10% of prevalence Considering a Non-response rate of 10%, the final sample size came out to be 2600. All households of sampled villages(4) formed the sampling unit, till the required sample size of 2600 was attained

Inclusion Criteria

1. Participants 5-59 yrs of age and permanently residing in the selected area for past one year.
2. Participants or their caregivers who consented for the study.

Exclusion criteria

1. People who had terminal illness
2. People who were severely ill and required hospitalization.

A pre-tested semi-structured questionnaire was used by the researchers to assess the socio-demographic characteristics of the study population like age, gender, education level, marital status, occupation, living alone or not, and financial status. Barthel Index was used for assessment of Activities of daily living. It includes items like bowel, bladder, grooming, toilet use, feeding, transfer, mobility, dressing, stairs, bathing. Patient score for each item is summed up and likely score ranges from 0-100 i.e. total dependence to total independent. Lower scores indicate increased disability and higher BI score indicates high level of ADL. (7) According to the BI scores, study participants were classified into three categories:

1. Fully dependent- BI < 50
2. Partially dependent- BI 50-85
3. Fully independent- BI>85

The survey was conducted by household visits. Before commencing the study, the researchers mentioned the purpose and significance of the study to the study participants in detail. Written Informed consent was taken from all the study participants. In case of the child aged 5-14 years, consent was sought from the parent / guardian or caretaker. The researcher gathered the information using the pretested questionnaire and Barthel Index. If the disabled person was not present at home, a second visit was made to the household as per the convenience of the disabled in order to interview him or her. The head of the household or a household member who was close to him/her and knows most about their disability were interviewed as the proxy respondent.

Statistical Analysis

All statistical analysis was carried out by using Statistical Package for Social Sciences (SPSS -20, IBM, Chicago, USA). For descriptive data, frequency with percentages was used. Association between categorical variables was tested using Chi-square test. If the expected frequency in cells were less than

5, then Fischer Exact test was used. Statistical significance level was set at p < 0.05. ([Figure 1](#))

Results

([Table-1](#)) summarizes the distribution of disabled persons in study subjects. Out of 2600 study participants, prevalence of disability came out to be 2.3% which was equal in both males and females.

([Table 2](#))-depicts the socio-demographic variables of study subjects. Out of 2600 study participants, 48 percent were males and 52 percent were females. Maximum (50.8%) study participants belonged to 20-39 years age group. Majority (65.6%) were Muslims. Maximum 96.7% were educated upto upper high school while 1.6% had educational qualification graduate & above. Most (54.1%) of the study participants were unemployed and majority (96.7%) belonged to middle socio- economic class.

([Figure 2](#)) shows assessment of Activities of daily living in disabled persons and most of the disabled were fully dependent on others for grooming & bathing were 24.7% and 21.1% respectively.

([Table 3](#)) depicts association between socio-demographic factors with dependency of Activities of daily living. It is shown that age, religion and occupation were found to be statistically significant (p-value =0.043,0.001 and 0.05 respectively) with dependency of ADL.

Discussion

In the current study, the prevalence of disability was found to be 2.3%, which is almost similar to the prevalence reported by National Sample Survey Organization (2003) (8) and Census (2001) (9)which revealed a prevalence of nearly 2%. Similarly, Patti et al. (2012) conducted a study in a rural community of Karnataka and reported a prevalence of 2.02% (10). Likewise, in a study by Borker S. (2005), it was found that the overall prevalence of disability was 3.9% (11). Similarly, disability prevalence of 4.87% in Sunsari district of Nepal was reported by Karkee et al. in which the findings were in line with our study.(12) Almost alike findings were observed by Ganesh K.S. et al. in rural population of Karnataka, where prevalence of 6.3% has been reported (13). Some studies have reported higher prevalence as compared to the prevalence found in our study. A much higher prevalence of 17% was found in a study by Suganthi S. et al. (2012) in Tamil Nadu and Srivastava DK et al. reported 19.46% (2007) in Uttarpradesh (14,15).In another study by Mahmood S.E.et al. found overall prevalence of disability to be

37% which is much greater than the findings of our study (16).

In another study by Reddy B.et al. (2006) in Tamil Nadu it was observed that the overall disability was 0.85% which is lower than in our study (17). The divergent prevalence rates of disability found in studies are due to differences in the samples that are taken in the studies and definitions used, that are perceived differently in studies.

The prevalence of disability was similar in both sex i.e. males (2.3%) and females (2.3%) respectively in our study. Similarly, no gender differences was observed in a study conducted in rural Tamil Nadu (2005) by Venkatorao T.et al. (18). In a different study done by Mahmood S.E. et al. in 2012 a higher prevalence of disability was observed in males (62.1%) as compared to females (37.8%). (16) Synonymous findings were also reported by Srivastava D.K. et.al. where prevalence in males (20.4%) was higher as compared to females (18.4%) (15). On the contrary, a study by Ganesh K.S. et al. reported that females (60%) were affected more than males (40%) (13)

In our study a higher number of respondents were Muslims (65.6%) as compared to Hindus (34.4%). Likewise in study by Borker S. (2005), the maximum number of individuals with disability belonged to Muslims (4.1%) as compared to Hindus (3.9%). (11) Alike findings were reported in study by Patti et.al.(2004), where a higher number of respondents were Muslims (74%) as compared to Hindus. (10) The reason could be the villages that were randomly included in the study comprised mostly of Muslim population.

In the present study prevalence of disability was higher among illiterates (49.2%) and those belonging to middle class (96.7%). Alike results were observed in study of Mahmood S.E. et al. where proportion of disabilities was found to be suggestively higher among illiterates and lower socioeconomic class(16). Almost close findings have been reported in studies by Borker S. et al. (11) and Alhajj et al. (19) Identical findings were revealed by Patel et al. where disability was greater among illiterates (49.2%)(20) and NSSO 2002 (21) also reported higher disabilities in illiterates .The reason for this can be, there are no distinctive school in locality for "disabled", which could be reason why disabled could not follow education and even if sent to school they are unable to cope up with their peers.

The present study revealed the prevalence of disability among the unemployed was very high (26.2%), 27.9% were doing household work, 26.2% were unskilled workers, farmers and people with petty business. Analogous findings were found in the study by Jagger C.et al. (2006) in Karnataka where half of the disabled were unemployed and 16.7% unskilled workers (22). On the contrary Padhyegurjar Mansi S. et al. (2012) in their study observed that 75% of disabled were unemployed which is higher in proportion to our study (23). The reason for this could be due to their illiteracy and not getting any vocational training. In our study majority of the disabled respondents were not married (60.7%), while only 36% were married and 3.3% were divorced/ separated/ widow. More females were unmarried as compared to males (72.4% and 50.0% respectively). Alike findings were observed by Laskar et. al. in their study (24) The reason could be disabled people suffer from low literacy, unemployment and many of the social deprivations besides inaccessibility to medical services are prominent and they get exaggerated with the difference in gender and caste.

Around 96.7 percent of the study participants were educated upto high school, which is close to the findings by Kumar R.et al.(25)). Regarding occupation it was observed that majority (54.1%) of the study participants were unemployed, almost similar findings were reported by Nag PK et al. in (2004), where 54.4% of the respondents were students. (26) Majority (96.7%) of respondents belonged to middle socio- economic class which are in line with the study by Yadav RJ et al. where majority of respondents also belonged to middle socio-economic class (82.2%) (27)

In the present study majority of individuals of each group were "partially dependent". Maximum (24.7%) of fully dependent individuals were dependent on others for grooming while none of them were "dependent" for bowel and bladder activities. However most (13.8%) of "partially dependent" individuals were dependent for bowel and bladder activities on others and least 2.0% for mobility. Among "fully independent" individuals majority were "dependent" for mobility on others. Similar findings were observed by Akeem O. Lasisi et al. in (2013) observed that maximum of disabled individuals were dependent in grooming and mobility (28). In another study by Ohri et al. in (2014) it was observed that maximum inability was found in

"bathing" and "dressing". Education and socioeconomic status had a positive effect on independence in ADL. Among all ADL male showed a maximum dependency for "cooking" and "laundry" while females showed a higher dependency in using "telephone", "managing money" and "travelling" (29) Analysis reveals that quality of life and activities of daily living are dependent upon finding a balance between body, mind and spirit in the self and on establishing and maintaining harmonious set of relations within the person's social context and external environment.

Conclusion

The overall prevalence of disability in the study was found to be 2.3 percent and it was equal in both males and females. Age-group 20-39 years were mostly affected in this study. Among activities of daily living (ADL), most of the disabled were fully dependent on others for grooming & bathing. Variables like age, religion, education and occupation were statistically significant with the ADL.

Recommendation

According to our study results we recommend that better health policies should be framed to reduce the burden of disease. Training of family members to provide support to disabled persons should be carried out regularly. In rural areas there should be promotion of home-based occupations so that disabled persons can earn their living. Education, employment, non-discrimination, vocational training and rehabilitation of the persons with disability should be strengthened to improve their activities of daily living and their quality of life.

Limitation of the study

As this was a cross-sectional study, the ability to predict the causal relationship among variables was limited. Secondly people with some mental illness were not taken in this study like patients who had mental illnesses or cognitive dysfunctions were excluded. Therefore, further research should focus on these patients to discover the possible influencing factors of ADL.

Relevance of the study

The study highlights that Activities of daily living of working age group due to disability was most commonly affected. In order to improve their functional status and confidence, vocational

trainings and rehabilitative services should be targeted.

Authors Contribution

Acknowledgement

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Tables

TABLE 1 DISTRIBUTION OF DISABLED PERSONS IN THE STUDY POPULATION

Disability	Males (1352) n (%)	Females (1248) n (%)	Total (2600) N(%)
Present	32 (2.3%)	29 (2.3%)	61 (2.3%)
Absent	1322 (97.7%)	1217 (97.7%)	2539 (97.7%)

TABLE 2 DISTRIBUTION OF SOCIO-DEMOGRAPHIC VARIABLES AMONG DISABLED

Socio-demographic variables	Number	Percentage
Age (In years) (n-61)		
5-19	10	16.4
20-39	31	50.8
40-59	20	32.8
Religion (n -61)		
Hindu	21	34.4
Muslim	40	65.6
Education (n-61)		
Up to High school	59	96.7
Intermediate	1	1.6
Graduate & Above	1	1.6
Occupation(n-57)		
Skilled	7	11.5
Semi-skilled	1	1.6
Unskilled	16	26.2
Unemployed	33	54.1
Socio-economic status of total households(n-61)		
Upper	1	1.6
Middle	59	96.7
Lower	1	1.6

TABLE 3 ASSOCIATION BETWEEN SOCIO-DEMOGRAPHIC FACTORS WITH DEPENDENCY OF ACTIVITIES OF DAILY LIVING

Socio-demographic variables	Activities Of Daily Living			p-value
	Fully Dependent	Partially Dependent	Fully Independent	
Age (in years) (n-61)				
5-19	8(32.0)	2(8.3)	10(16.4)	0.043
20-39	12(48.0)	11(45.8)	8(66.7)	
40-59	5(20.0)	11(45.8)	4(32.8)	
Gender (n-61)				
Male	12(48.0)	14(58.3)	6(50.0)	0.75
Female	13(52.0)	10(41.7)	6(50.0)	
Religion (n-61)				
Hindu	17(68.0)	1(4.2)	3(25.0)	<0.001
Muslim	8(32.0)	23(95.8)	9(75.0)	
Education(n-61)				
Up to High School	24(96.0)	24(100)	11(91.7)	0.23
Intermediates	1(100)	0(0.0)	0(0.0)	
Graduates &Above	0(0.0)	0(0.0)	1(100)	
Occupation (n-57)				
Skilled	0(0.0)	4(18.2)	3(27.3)	0.05
Semi-skilled	0(0.0)	0(0.0)	1(100)	
Unskilled	6(25.0)	7(31.8)	3(27.3)	
Unemployed	18(75.0)	11(50.0)	4(36.4)	

Figures

FIGURE 1 SAMPLING METHODOLOGY

Dehradun District

⬇

Six community development blocks

⬇

Doiwala Block
(SIMPLE RANDOM SAMPLING)

⬇

5 Nyay Panchayat
(SIMPLE RANDOM SAMPLING)

⬇

1 Nyay Panchayat (Makham Grant)
(SIMPLE RANDOM SAMPLING)

⬇

Four villages selected

⬇

534 Households selected to get the desired sample size

⬇

All households of sampled villages formed the sampling unit, till the required sample size of 2600 was attained
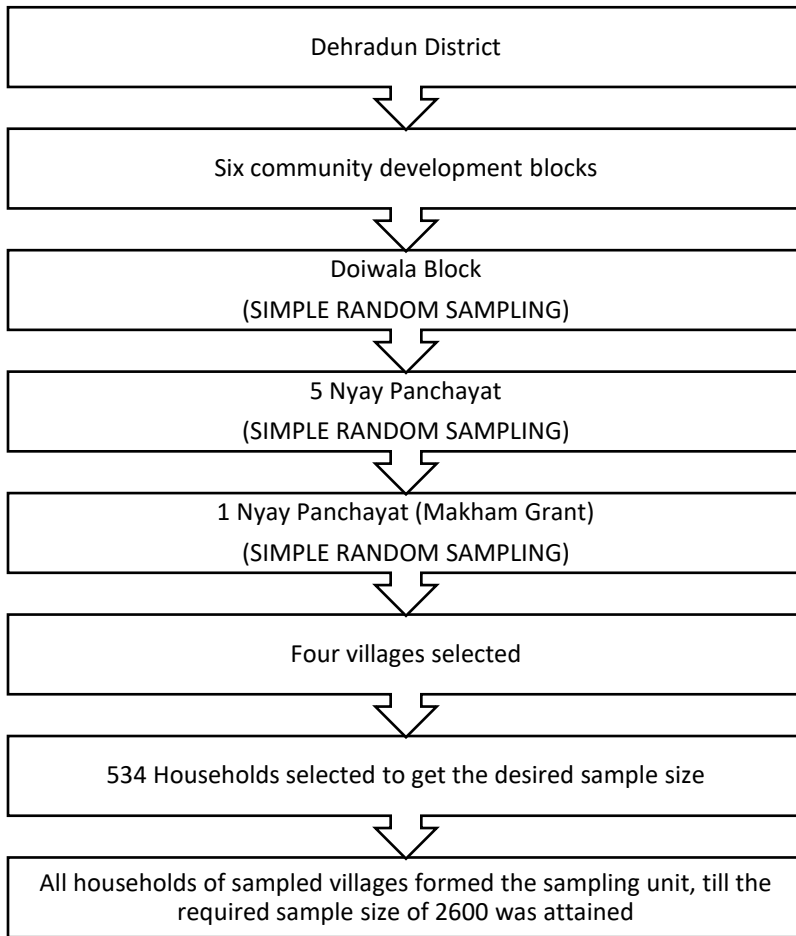
FIGURE 2 ASSESSMENT OF ACTIVITIES OF DAILY LIVING IN DISABLED PERSONS (N-61)