International Journal of Community Medicine and Public Health
Raut RU et al. Int J Community Med Public Health. 2020 Apr;7(4):1571-1575
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20201476

Original Research Article

The impact of physical disability on activities of daily living of physically disabled persons attending tertiary care centre of Nagpur using Barthel's scale: a cross-sectional study

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Received: 06 February 2020
Accepted: 13 March 2020

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ABSTRACT

Background: Disability reflects the difficulties that the disabled person experiences during physical movement as well as interaction with the society. This restrictions act as barrier for executing daily living activities which results into poor health outcome and increased dependency. The objective is to study impact of physical disability on activities of daily living (ADL) of physically disabled person.
Methods: A present cross-sectional study was undertaken at Indira Gandhi government medical college, Nagpur. Physically disabled persons aged more than 18 years of age attending outpatient department for disability were included in this study. This study was carried out from 1st May to 31st September 2018. In all total 83 subjects were enrolled in this study. For assessment of activity of daily living Barthel index was used. Descriptive statistics (frequencies and percentage) were obtained and data was analysed by using Microsoft Excel and Epi-Info version 7.2.
Results: In all 83 rural subjects were considered for final analysis. Out of 83 subjects 49 (59.04%) were male and 34 (40.96%) were female. Mean±SD age in years was 40.5±12.9. Majority of study participants were belonging to class IV and V category of socio-economic status. Activities such as transfer, mobility, and stair climbing showed greater impact of physical disability. It was found that 18.1% respondents required major help for transfer as an ADL.
Conclusions: It is clear from the present study that the activity of daily living is impacted due to disability. In every activity domain it was found that majority were independent.

Keywords: Disability, Activities of daily living, Barthel index

INTRODUCTION

As per the World Health Organization's (WHO) World Report on Disability, over a billion people are with disabilities and represent over 15% of the world's population.[1] As per the Census 2011, in India, there were 2.21% are 'disabled'.[2] Disability felt as a result of the interaction between a person with a health condition and a particular environmental context. Individuals having similar health conditions may not be similarly disabled or share the same perception of their disability and depending on their environmental adaptations. It is a multifaceted aspect, reflecting the interaction between the peculiarities of a person's body and the characteristics of the society in which he or she lives. Overcoming the difficulties confronted by people with disabilities needs interventions to remove environmental and social barriers.[3]

Age-standardized disability prevalence for males and females in the rural part of India is 2.66% and 2.20%, respectively, which is more than the urban population.

Moreover, in Maharashtra, it is 3.02% and 2.38% in males and females, respectively.[4]

Disability includes impairments, limitations of activity, and also a restriction in participation. Moreover, it reflects the difficulties that the disabled person experiences during physical movement as well as interaction with society. These restrictions act as a barrier for executing daily living activities, which results in poor health outcomes and increased dependency.[5] It involves degrees of difficulty, limitation, or dependence, ranging from slight to severe. A study was conducted in Karnataka by Kuvalekar et al found that respondents require help in grooming 11.5%, toilet use 3.1%, transfer 13.1%, and dressing 0.8%.[6] In a study conducted in Jhansi by Gupta et al using the ten items Barthel scale, revealed that 23.4% of participants were dependent in at least one activities of daily living (ADL) disability.[7]

The majority of studies were mostly focused on the prevalence of disabilities in India and focused on the geriatric population. Furthermore, there is insufficiency in the literature available on the activities of daily living among physically disabled persons. In the present study Barthel index is used which was widely used in various studies to assess the activity of daily living and demonstrated its reliability and validity.[8-11] The objective is to study the impact of physical disability on activities of daily living of the physically disabled person.

METHODS

A cross-sectional study was conducted in Indira Gandhi government medical college and hospital, Nagpur from 1 May to 31 September 2018. The study population was physically disabled person attending outpatient department (OPD) for disability certification of rural area of Nagpur. Every alternate person with disability attending the OPD was enrolled in the study as per eligibility criteria. In this study purposively we enrolled 83 subjects.

The participants who were age 18 years and above and permanently physically disabled were included in the study. Those who were mentally retarded and severely ill were excluded.

The operational definition for permanent physical disability is a person having disability related to locomotion and movement due to loss or absence or inactivity of whole or part of hand or leg or both.[12]

A predesigned, pretested questionnaire consisting of general information regarding socio-demographic like age, gender, marital status, education, the occupation was used. For assessment of activity of daily living Barthel index was used.[13,14] Barthel Index has ten main ADL, which included bowel habits, bladder habits, grooming, toilet use, feeding, dressing, transfer, mobility, stair climbing and bathing. The total score was 20. The total score ranges from 0 to 20 in all 10 items, with higher score indicating greater independence. A total score of 0 stands for complete dependency in all 10 ADLs, whereas a score of 20 means complete independence in all ADLs. An institutional ethics committee's clearance was sought before initiation of the study. Each informant was explained the nature and purpose of this study and their written informed consent was obtained. Data collection was done by interview method at disability certification OPD.

Data was analysed by using Microsoft Excel and Epi-Info version 7.2. and descriptive statistics (frequencies and percentage) were calculated.

RESULTS

In all 83 rural subjects were considered for final analysis. Out of 83 subjects; 49 (59.04%) were male and 34 (40.96%) were female. The mean±SD age in years was 40.5±12.9. The mean±SD score was 15.7±5.8, lowest was 1 and highest was 20. Table 1 shows that majority of study participants were belonging to class IV and V category of socio-economic status 37 (44.6%) and 36 (43.4%) respectively). Majority 51 (61.4%) were married, 53 (63.9%) were Hindu by religion, 21 (25.3%) and 20 (24.1%) were upper primary and primary respectively, 39 (47%) were unemployed and 45 (54.2%) were living in nuclear family.

Table 1: Distribution of participants according to socio- demographic characteristics.

Variables	Male (n=49)	Female (n=34)	Total (n=83)
	N (%)	N (%)	N (%)
Marital status			
Married	29 (59.2)	22 (64.7)	51 (61.4)
Separated	2 (4.1)	0 (0)	2 (2.4)
Unmarried	17 (34.7)	10 (29.4)	27 (32.5)
Widow or widower	1 (2)	2 (5.9)	3 (3.7)
Religion			
Buddhist	13 (26.5)	13 (38.2)	26 (31.3)
Hindu	33 (67.3)	20 (58.8)	53 (63.9)
Muslim	3 (6.1)	1 (2.9)	4 (4.8)

Continued.

Variable	Male (n=49)	Female (n=34)	Total (n=83)
	N (%)	N (%)	N (%)
Education			
Post-graduate	6 (12.2)	3 (8.8)	9 (10.8)
Senior secondary	9 (18.4)	7 (20.6)	16 (19.3)
Secondary	7 (14.3)	4 (11.8)	11 (13.3)
Upper primary	10 (20.4)	11 (32.4)	21 (25.3)
Primary	14 (28.6)	6 (17.6)	20 (24.1)
Illiterate	3 (6.1)	3 (8.8)	6 (7.2)
Occupation			
Clerical	1 (2)	4 (11.8)	5 (6)
Shop owner	2 (4.1)	0 (0)	2 (2.4)
Farmer	10 (20.4)	0 (0)	10 (12)
Semi-skilled	2 (4.1)	1 (2.9)	3 (3.6)
Skilled worker	4 (8.2)	0 (0)	4 (4.8)
Unskilled	16 (32.7)	4 (11.8)	20 (24.1)
Unemployed	14 (28.6)	25 (73.6)	39 (47)
SES			
I	1 (2)	1 (2.9)	2 (2.4)
III	2 (4.1)	6 (17.6)	8 (9.6)
IV	23 (46.9)	14 (41.2)	37 (44.6)
V	23 (46.9)	13 (38.2)	36 (43.4)
Type of family			
Joint	13 (26.5)	9 (26.5)	22 (26.5)
Nuclear	27 (55.1)	18 (52.9)	45 (54.2)
Three generation	9 (18.4)	7 (20.6)	16 (19.3)

Table 2: Distribution of participants according to ADL.

Type of ADL	Activity	Number (%)
Bowel	Continent	72 (86.7)
	Incontinent	11 (13.3)
Bladder	Continent	72 (86.7)
	Incontinent	11 (13.3)
Grooming	Independent	64 (77.1)
	Needs help	19 (22.9)
Toilet use	Dependent	15 (18.1)
	Independent	56 (67.5)
	Need some help but can do sometime alone	12 (14.5)
Feeding	Independent	64 (77.1)
	Needs help	8 (9.6)
	Unable	11 (13.3)
Transfer	Independent	36 (43.3)
	Major help	15 (18.1)
	Minor help	32 (38.6)
Mobility	Immobile	3 (3.6)
	Independent	49 (59.0)
	Walks with the help of one person	23 (27.7)
	Wheelchair	8 (9.6)
Dressing	Dependent	11 (13.3)
	Independent	65 (78.3)
	Needs help	7 (8.4)
Stairs	Unable	19 (22.9)
	Needs help	39 (47.0)
	Independent	25 (30.1)
Bathing	Dependent	15 (18.1)
	Independent	68 (81.9)

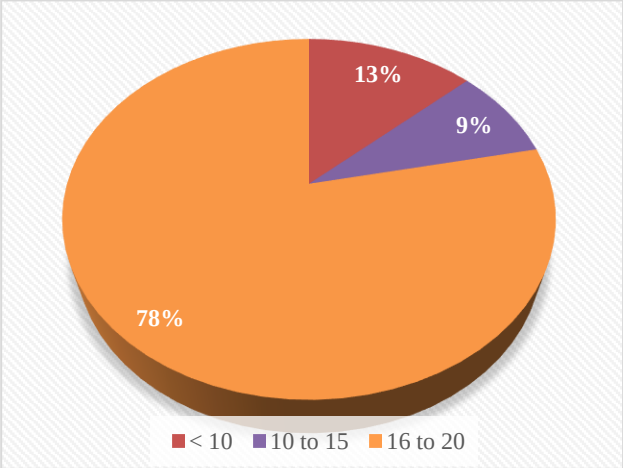

Figure 1: Distribution of participants according to scores.

Figure 1 shows distribution of participants according to score. It was found that majority 65(78%) of participants were having score 16 to 20 which indicates mild disability. Followed by 11 (13%) were having score <10 which indicates severe disability. There were 7 (9%) were having score 10 to 15 which indicates moderate disability.

Table 2 shows that 11 (13.3%) were incontinent for bowel and bladder, 19 (22.9%) needs help grooming, 15 (18.1%) were dependent for toilet use, 11 (13.3%) were unable to feed themselves, for transfer 15 (18.1%) needs major help, 3 (3.6%) were immobile, 11 (13.3%) were dependent on others for dressing, 19 (22.9%) were unable to climb stairs and 15 (18.1%) were dependent on others for bathing.

Table 3: Gender wise distribution of ADL score.

ADL score	Male	Female	Total
	N (%)	N (%)	N (%)
Independent in all ADLs (ADL score=20)	8 (61.5)	5 (38.5)	13 (100)
Complete or partial limitations in one or more ADLs (ADL score<20)	41 (58.6)	29 (41.4)	70 (100)

Table 3 shows that majority 8 (61.5%) of males were iindependent in all ADLs (ADL score=20) and also majority 41 (58.6%) of males were having complete or partial limitations in one or more ADLs (ADL score<20).

DISCUSSION

The present cross-sectional study was conducted in tertiary care centre among physically disabled person attending disability certification outpatient department (OPD) to study the impact of physical disability on activity of daily living. There were 49 males and 34 females were studied. Majority 65 (78%) were having score between 16 to 20 which indicates mild disability, 39 (47%) were unemployed, majority of study participants were belonging to socio-economic status class IV and V (37 (44.6%) and 36 (43.4%) respectively), 45 (54.2%) were living in nuclear family. The mean±SD score was 15.7±5.8. The physical disability had greatly affected ADL like toilet use, transfer, mobility and stairs climbing.

This study is attempted to highlight the ADL profile and socio-demographics of rural participants. Almost one third of the study population had limitations in one or more ADL items.

Present study reveals that 13 (15.7%) were independent in all ADLs (ADL score=20) of which majority 8 (61.5%) were males. This indicates that 15.7% who came for disability certification were able to carry out daily activities independently and not influenced greatly by their disability. It was observed that those who were having complete or partial limitations in one or more ADLs (ADL score<20) were 70 (84.3%) out of which majority were also males i.e. 41 (58.6%). This might be due to more severity of impairment and injuries in males which restrict them to carry out daily activities.

In present study 27 (32.5%) were single which is low as compared to study conducted by Kuvalekar et al found that 46.2% participants were single and a study conducted in Bangladesh by Hosain et al where (47.5%) of respondents were single.[6,15]

Kuvalekar et al observed that 32.3% were living in joint family and high proportion of participants living in joint family was observed in study conducted by Ganesh et al whereas in present study 26.5% living in joint family.[6,16]

In present study 47% were unemployed whereas the study conducted by Kuvalekar et al, Kaka et al and Abdulraheem et al had reported >60% of the respondents being unemployed.[6,17,18]

In the present study, 22.9% needs help in grooming which is more compared to the study conducted by Kuvalekar et al found 11.5% needs help in grooming.[6] It is less compared with a study conducted in Nigeria by Abdulraheem et al which reported 28.3% respondents required help in one domain.[18] The reason could be majority being the geriatric population in Nigerian study.

In present study 18.1% were dependent for toilet use which more in contrast to study by Kuvalekar et al only 3.1% were dependent.[6] This can be explained by as 13% of the participants in present study have ADL score <10. Whereas proportion of participants immobile (3.6%), unable to climb stairs (22.9%), dependent for bathing (18.1%) were similar to the study conducted by Kuvalekar et al.[6]

In the present study any one of the main ADL, which included bowel habits, bladder habits, grooming, toilet

use, feeding, dressing, transfer, mobility, stair climbing and bathing were affected in the study subject.

The limitations in our study are the smaller number of participants and it is an hospital-based study. So, community-based study can give better estimates.

CONCLUSION

It is clear from the present study that the activity of daily living is impacted due to disability. In every activity domain it was found that majority were independent. Activities like climbing of stairs, transfer and mobility were greatly affected due to physical disability. Decline in ADL not only negatively impacts physical well-being but also social, emotional, and mental well-beings of physically disabled persons. The total score gives an overall condition of the disabled person but the breakdown into individual items of ADL indicates where the deficiencies present and that can be targeted for further care.

It is recommended that by providing medical treatment, the activity of daily living of disabled persons may improve especially those due to medical conditions.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Raut RU, Thakre SS, Thakre SB. The impact of physical disability on activities of daily living of physically disabled persons attending tertiary care centre of Nagpur using Barthel's scale: a cross-sectional study. Int J Community Med Public Health 2020;7:1571-5.