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Distribution of Disabled Persons in World's Most Populous State

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ABSTRACT

Background Data on disability is essential for the government to prepare policies, assign sufficient resources and apply appropriate strategies. We aimed to approximate the prevalence of disability and express the forms of disability by age, gender, residence and districts in Uttar Pradesh, (UP) India.

Methods We analyzed the 2011 Census data of Uttar Pradesh. Disability rates per 100 000 population were calculated.

Results There were 41, 57,514 disabled individuals in UP in 2011 out of total 19,98,12,341 population ,disability rate of 2081 per 100 000 population. Disability in hearing, seeing and movement individually accounted for 25%, 18% and 16% of the total disability, respectively. Disability rates increased as age advanced with the higher rate of 4276 per 100 000 among people aged 60 years and above. The disability rates were higher in males. Higher disability rates were also observed among illiterates (2331 per 100 000).Widowed, divorced and separated were having highest disability rate of 4529 per 100000. Literate, currently married and working populations had lower disability rates.

Conclusions Physical or mental disability was observed in 2.1% of the population of Uttar Pradesh. Research is necessary to identify underlying causes and interventions to reduce the burden of disability in the state.

Key Words: Disabled persons, Censuses, Hearing, Intellectual Disability, Movement

INTRODUCTION

The International Classification of Functioning, Disability and Health (ICF) define disability as an umbrella term for impairments, activity limitations and participation restrictions. [1] Worldwide, around 785-975 million persons aged 15 years and older are living with disability based on 2010 population estimates. [2]As per World Health Survey approximates 110 million people have very considerable difficulties in functioning while the Global Burden of Disease Survey approximates 190 million contain severe disability. [2] Information relating to the scale, category of disability, age at commencement of disability, probable cause of disability is very important to evolve a flourishing program for social integration of the disabled. [3]

In India, data on disability is gathered during the census once every 10 years [4] and during cyclic surveys by the NSSO. [3]

Inequity against persons with disabilities, and reluctance to bear the costs of creating a more reachable environment e.g. at schools or workplace are key hindrances to the enhancement of the lives of persons with disabilities. [5] In many middle-income countries, only 5-15% of people who necessitate assistive yield have access to them. [6] These yield can have a noteworthy impact on a person's functioning and health. [6] WHO hosted Rehabilitation 2030: a call for action, which brought together over 200 rehabilitation professionals from 46 different countries. [6] The meeting emphasized the important need to address the intense unmet needs for rehabilitation around the world, and the unavoidability

of rehabilitation in achieving Sustainable Development Goal 3 to "ensure healthy lives and promote well-being for all at all ages". [6]

Disability data may persuade governments to create better facilities or provide tax enticements to schools or firms that accept persons with disabilities. [5]It is crucial that contact to reasonable healthcare and rehabilitation be recommended to persons with disability.

The state of Uttar Pradesh has a highest population in World, 19,98,12,341 as compared to other states and poor health indicator, Under-five mortality rate was 78/1000 live births which was more than 11 times as compared to Kerala, 7/1000 live births. [7, 8] There is a need to enumerate the burden of disability since this information is essential for the government to prepare policies and assign adequate resources and achieve suitable intercession program for persons with disability. In accordance with the 2011 Census of India, 2, 68, 14,994 out of 121,08, 54, 977 Indian people (2.2%) is either physically or mentally disabled. [4] The author intended to measure the prevalence of disability and illustrate types of disability in Uttar Pradesh founded on the Census 2011 data.

METHODS

It was a cross-sectional secondary data examination of the Census 2011.In India it is carried out once every 10 years. The 2011 Census questionnaire had three questions concerning to disability which gathered data on (a) presence of mental or physical disability (Yes 1, No 2); (b) type of disability (seeing 1, hearing 2, speech 3, movement 4, mental retardation 5, mental illness 6, any other 7, multiple 8); and (iii) the nature of disabilities (maximum of 3) in people in whom the response to the second question was 'multiple disability'. [4, 5]

All the indicators to measure the prevalence of disability and illustrate types of disability in Uttar Pradesh of the all districts have been calculated through MS excel software. Census data Series C14 for ageing indicator [8] and series C20 for disability have been used. [4] Information on disability of individuals was collected during the Population Enumeration phase of Census 2011 through 'Household Schedule'. [9]

In Census 2011 information on eight types of disability has been collected.[5] National Centre for Promotion of Employment for Disabled People (NCPEDP) and its alliance partners were associated in developing training modules, imparting training and sensitizing Census functionaries

Disability rates per 100 000 population were calculated. The 2011 data from C20 Table pertaining to Uttar Pradesh was used for the numerator which consisted of the number of disabled persons by type of disability, age, gender and type of residence (rural/urban). [4]

The denominator was obtained from C-14 five-year age group data by residence and sex from Census 2011. [10] This table provides information on the number of people in Uttar Pradesh as well as in districts in various age groups. [10] All the indicators to measure the prevalence of disability and illustrate types of disability in Uttar Pradesh of the all districts have been calculated through MS excel software.

Definitions of disability in [5]

1. Seeing: A person who cannot see at all (has no perception of light) or has blurred vision even with the help of spectacles will be treated as visually disabled. A person with proper vision only in one eye will also be treated as visually disabled. A person may have blurred vision and had no occasion to test whether his/her eye- sight would improve by using spectacles. Such person would also be treated as visually disabled.

2. Hearing: A person who cannot hear at all or can hear only loud sound will be considered as having hearing disability. Also a person who cannot hear through one ear but the other is functioning normally is considered as having hearing disability.

3. Speech: A person will be recorded as having speech disability if he/she is dumb. A person whose speech is not understood by a listener of normal comprehension and hearing will be considered having speech disability. A person who stammers but whose speech is comprehensible will not be classified as having speech disability.

4. Movement: Following persons will also be treated as having movement disability: if any part of the body is deformed; who cannot move himself /herself or without the aid of another person or without the aid of stick etc; if he/she is unable to move or lift or pick up any small article placed near him; and a person not able to move normally because of problems of joints like arthritis and has to invariably limp while moving

5. Mental Retardation: **A** condition of arrested or incomplete development of mind of a person which is specially characterized by sub-normality of intelligence. The onset of mental retardation is usually from birth or in some cases before the age of 18 years.

6. Mental illness: A person will be considered as having Mental Illness if she/he has a psychological or behavioral pattern associated with distress or disability that is not a part of normal development.

The affected person is generally not able to cope with the problem.

7. Any other: If the person has a disability that is not covered under any of the categories listed in the question. If the respondent/person reports that she/he or any member of her/his household has a disability other than those listed in the question, write code-7 in the box against 9(b). This category would include disabilities like Autism etc.

8. Multiple Disabilities means a combination of two or more disabilities. Persons suffering from any of the two or more disabilities bearing code nos. 1 to 7 listed in the question will be treated as having 'Multiple Disabilities". The question has been designed to record a combination of maximum three types of disabilities.

RESULTS

There were 41 57 514 individuals with disability in Uttar Pradesh in 2011 accounting for a disability rate of 2081 per 100 000 populations (2.1 %; 2011 population of Uttar Pradesh: 199812341). The disability in hearing, seeing and movement was most predominant with rates of 514, 382 and 339 per 100 000, respectively. Disability rates in other disability, speech, mental retardation and mental illness were 474, 133, 91 and 38 respectively. Disability in hearing, seeing and movement individually accounted for 25%, 18% and 16% of the total disability burden. In calculation, disability in speech, multiple disability, mental retardation and mental illness constituted 6%, 5%, 4% and 2% of the total disability, respectively. The outstanding about 23% of disability was due to other causes.

Disability rates in districts of Uttar Pradesh: Of the 71 districts, age-standardized disability rates in 15 districts were above the state average of 2081 per 100 000 population and ranged from 3918 to 1406 per 100 000 population [Table 1]. Kushinagar, Ghaziabad and Allahabad districts had the highest disability rates of 3918, 3082 and 2994 per 100 000 population, respectively. Jyotiba Phule Nagar and Lalitpur districts had the lowest rates of 1406 and 1472 per 100 000 population, respectively.

Disability in seeing, hearing, movement and speech was highest in Kushinagar (1517 per 100 000 and 1136 per 100 000), Fatehpur (443 per 100 000) and Pratapgarh (244 per 100 000), respectively [Table 1]. Mental retardation (121 per 100 000) and mental illness (54 per 100 000) were high in Varanasi. Kaushambi had a high number of any other disability rate (740 per 100 000) [Table 1].

Disability rates by demographic variables: Disability rates increased as age advanced with the highest rate of 4276 per 100 000 among people aged 60 years and above [Table 2]. The disability rates were higher in males and in urban areas [Table 2]. Higher disability rates were also observed among illiterates (2331 per 100 000).Widowed, divorced and separated were having highest disability rate of 4529 per 100000 When the distribution of percentage disabled was seen, it was observed that 37 % disabled were in age-group of 0-19 years and 76 % of disabled belonged to rural area and 65 % were non-workers [Table 2].

Table: 1 Disability rates per 100 000 according to type of disability in some districts of Uttar Pradesh, 2011*

District	Disability rate per 100000 population							
	Seeing	Hearing	Speech	Movement	Mental retardation	Mental illness	Any Other	Multiple
Ghaziabad	665	1034	144	295	90	37	704	115
Gautam Buddha Nagar	345	625	120	257	76	29	641	89
Agra	596	922	135	294	81	30	574	87
Lucknow	679	658	172	322	112	53	565	100
Kanpur Nagar	573	631	104	408	**113**	50	543	116
Fatehpur	451	387	132	**443**	105	45	396	**143**
Pratapgarh	307	701	**244**	353	99	44	564	117
Kaushambi	526	598	138	370	111	36	**740**	120
Allahabad	665	876	165	296	111	40	735	106
Bara Banki	341	435	188	388	93	41	596	135
Mahrajganj	532	537	166	254	97	32	587	98
Gorakhpur	437	545	177	275	95	43	573	124
Kushinagar	**1517**	**1136**	185	225	82	28	640	104
Deoria	594	461	168	340	110	38	455	125
Varanasi	712	617	173	311	121	**54**	531	116
Jyotiba Phule Nagar#	205	299	104	320	77	31	273	98

*First 15 districts had disability rates above the state average of 2081 per 100 000 population and # district with lowest disability rates per 100 000

Table: 2 Distribution of disability rates by basic demographic variables in Uttar Pradesh, 2011

Variables	Total Population	Total Disabled	Percentage	Disability rate per 100000
Age in Years				
0-19	94348646	1551148	37	1644
20-39	57669381	1193540	29	2070
40-59	30732348	711070	17	2314
More than or equal to 60	15439904	660245	16	4276
Age not stated	1622062	41511	1	2559
Sex				
Male	104480510	2364171	57	2263
Female	95331831	1793343	43	1881
Residence				
Rural	155317278	3166615	76	2039
Urban	44495063	990899	24	2227
Marital Status				
Never married	105471588	1989084	48	1886
Currently married	86450758	1811099	44	2095
Others	7889995	357331	9	4529
Literacy level				
Literate	114397555	2166693	52	1894
Illiterate	85414786	1990821	48	2331
Workers				
Main workers	44635492	935988	23	2097
Non-workers	133997626	2711121	65	2023
Marginal Workers				
Work for < 3 months	4294074	105684	21	2461
Work for3-6 months	16885149	404721	79	2397

Table: 3 Distribution of differences in type of disability based on age groups

Disability in	0-19 years (n=94348646)		20-39 years (n=57669381)		40-59 years (n=30732348)		≥60 years (n=15439904)		Age not stated (n=1622062)	
	Disabled	Rate	Disabled	Rate	Disabled	Rate	Disabled	Rate	Disabled	Rate
Total disables	1551148	1644	1193540	2070	711070	2314	660245	4276	41511	2559
Seeing	267013	**283**	179377	311	138620	**451**	171630	**1112**	7348	453
Hearing	414367	**439**	284437	**493**	171611	**558**	146225	**947**	11195	690
Speech	108924	115	83232	144	46685	152	25236	163	2509	155
Movement	190568	202	232250	**403**	115305	375	135521	**878**	4069	251
Mental retardation	76168	81	63353	110	29600	96	10852	70	1369	84
Mental illness	23476	25	29262	51	16563	54	6822	44	480	30
Any other	390735	414	273282	474	166429	542	102841	666	13149	811
Multiples	79897	85	48347	84	26257	85	61118	396	1392	86

* Rate per 100000

Analysis of disabilities by age (categorized as 0–19 years, 20–39 years, 40–59 years, and 60 years and above):

Disability rates associated with seeing, hearing and movement increased as age advanced with rates of 1112, 947 and 878 per 100 000, respectively in the age group 60 years and above Mental retardation decreased with advancing age after 40 and was highest with 110 per 100 000 in the age group 20–39 years. Mental illness was high in the age group 40–59 years with a disability rate of 54 per 100 000. Disability in speech was increasing as age advances.

Multiple disabilities were more common in ≥60 years of age with rates of 396 per 100 000 population [Table 3].

DISCUSSION

The author observed that more than 2 in every 100 person in Uttar Pradesh (2081 per 100 000 persons) is either physically or mentally disabled based on the data of Census 2011.This is lower than reported by Ganesh KS et.al.6.3 % in rural community of Karnataka. [11]The reason given was that even mild degrees of disability were detected in their study. [11]

The strengths of the Census survey include its application through universal reach and use of standardized procedures in data collection. However, there are limitations due to non-response and under-reporting might result due to inability to capture the complex and sensitive information related to disability.

The higher percentage of disabled in rural areas compared to urban (76% versus 24%) in Uttar

Pradesh reflect the overall Indian scenario, which showed disability rates of 69% versus 31 %.[4, 9] Similar observations was noted by Saikia N et.al. [13]

Disability rate per 100000 in more than 60 years age group was 4276 was highest in all age groups, this finding is consistent with various studies. [11, 12] The observation of male predominance in disabilities with 2.2% as compared to female 1.9% disability in Uttar Pradesh (UP) in this analysis is similar to that of higher disability rates in India among males which was 1.2% and 1.0 % compared to that of females. [4, 7]But the rates observed in our analysis are about 1 % higher which needs further research for this gender inequality and policy to deal with the same. However female predominance in disabilities was observed by Courtney-Long EA et.al. [14] and Stewart Williams J et.al. [15]

Comparison of the prevalence of different types of disability observed in UP with that of India showed that disability in hearing to be higher in UP (514 versus 418 per 100 000). [4, 10] Rubella, noise induced hearing loss, ear discharge, other illness, burns, injury other than burns, medical/surgical intervention and old age were the reasons as mentioned in 2002 NSSO survey of India. [3] Kushinagar, Ghaziabad and Agra had very high prevalence of disability in hearing with rates more than 900/100000 population and Kushinagar had rate of 1136/100000 population, so there is need of further research in these districts. Recognizing the causes of disability is important to plan suitable preventive strategies and research is deserved in this area.

High burden of disability in hearing and seeing in the age group of 0–19 years (children) and hearing, seeing and movement -related disability between 20 and 59 years (efficiently productive age group) in our analysis is a matter of apprehension. Recognition of factors and interpreters of disability in these categories through research studies is decisive.

Singh A et.al had also observed higher prevalence of visual disability. [16] As 76 % of disabled are living in rural area, integration of rehabilitation services in primary health care and capacity building of health workers by training needs to be focused.

The lives of disabled people are exaggerated by poor health outcomes, lower educational attainments, fewer economic participation, soaring rates of poverty and augmented dependency. [2] The program managers have to deal with the obstacles to healthcare, rehabilitation, education, employment, support and assistance services and create facilitating environments. [2]

Disability prevalence rates related to disability reveal the overall health status of the population. We have presented the estimates of disability prevalence, geographical and gender differentials in the disability rates in Uttar Pradesh. To comprehend the reasons, further research studies will have to be intended. Applying effectual and focused strategies for prevention will help to decrease the burden of disability in Uttar Pradesh.

CONCLUSIONS

Physical or mental disability was observed in 2.1% of the population of Uttar Pradesh. Higher burden of disability in hearing and seeing in the age group of 0–19 years (children) and hearing, seeing and movement -related disability between 20 and 59 years (efficiently productive age group) in our analysis is a matter of apprehension. Research is necessary to identify underlying causes and interventions to reduce the burden of disability in the state with special reference to districts which had disability rates above state average.

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