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Original Research Article

Disability, work status and deprivation among working age-group: shred of evidences from National Sample Survey 76th round data

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ABSTRACT

Background: In the Indian context, where a substantial portion of the population is of working age and 2.1% grapple with disabilities, as per the 2011 census, the emergence of diverse disability profiles within this demographic becomes a paramount concern. This issue holds profound consequences, directly impacting the nation's productivity and overall economic landscape. The focus of this study is a comprehensive examination of the repercussions of disability, honing in on the alteration and loss of occupational experiences among individuals in the working-age stratum.
Methods: The primary objective is the computation of a "disability deprivation index" for both India as a whole and its states, a multinomial logistic regression model is employed, seeking to elucidate the extent of the impact precipitated by the onset of disability in the working-age population. Multiple classification analysis is integral to determining adjusted percentages (probabilities) of changes of work, loss of work, and no loss or change of work, derived from multinomial logit regression, fostering a nuanced understanding of the issue.
Results: The study reveals that 2.2% of individuals previously gainfully employed experience disability, with a significant majority losing their livelihoods due to disabling conditions. The disability deprivation index provides insights into relative deprivation levels across states, highlighting Kerala as the least deprived and Bihar as the most deprived.
Conclusions: Despite commendable efforts by government and non-governmental organizations to address the needs of disabled population, the study underscores the stark reality that these provisions reach only a fraction of the disabled population, intensifying the severity of the situation concerning disability in India.

Keywords: Disability deprivation index, Difficulty in public transport, Loss of work, Change of work, Work status

INTRODUCTION

The World Health Organization's (WHO) international classification of functioning, disability, and health (ICF) offers a nuanced perspective on disability, considering physical impairments, limitations in activities, and constraints on physical participation.[1] This definition underscores the complex interplay between an individual's physical or mental health condition, such as cerebral palsy, Down syndrome, or depression, and personal and environmental factors.[2] Globally, 15% of the population faces some form of disability, with a significant 80% falling within the working-age demographic, primarily residing in developing nations. Projections suggest this figure could double to 2 billion by 2050, emphasizing the magnitude of the issue.[3] Despite concerns raised by esteemed organizations such as WHO and the World Bank, disability remains somewhat marginalized within policy research and developmental studies. The World Bank Report on disability in 2011 delves into the intricate nature of disability, recognizing its complexity, dynamism, multidimensionality, and contested nature. Globally comparable data reveals a higher prevalence of disability in developing nations compared to their developed

counterparts. This disparity arises from differing definitions of disability, with low and middle-income countries often employing impairment-related definitions, while high-income countries use broader definitions incorporating activity limitations, resulting in higher prevalence rates.[4] In the 2000s, multilateral agencies, bilateral donors, and scholars began recognizing disability as an integral facet of development.[5-9]

Discrimination perpetuates a glaring employment gap between individuals with and without disabilities, stemming from prejudicial biases, misconceptions about productivity, and, at times, the exploitation of disabled workers by employers.[10,11] Accessibility to the workplace, the proximity of workplaces to accommodation, and discriminatory practices contribute to this stark disparity in employment (Baldwin and Johnson, 2005). Cultural contexts often harbor negative perceptions regarding the employability of individuals with disabilities, further limiting their access to gainful employment.[12] Extensive literature on disability and employment within developed and transitioning economies consistently reveals lower employment rates among persons with disabilities.[13-15] Waidmann (2002) underscores a significant association between disability and work limitations. Empirical data from the USA's Health and Retirement Study in 1996 revealed that 29.2% of disabled men and 36.9% of disabled women reported accommodations by employers based on their disability status. However, few disabled individuals retained their jobs.[16] Nations with robust return-to-work programs demonstrate higher job retention rates among this population.[17] Over time, many countries have increasingly emphasized opportunities for economically productive engagement for people with disabilities, shifting disability from the periphery to the center of policy discussions.[18,19] The international year of disabled persons (IYD) in 1981 marked heightened attention toward the economic consequences of disability, particularly among the prime working-age population.

In India, the persons with disabilities act of 1995 provides a widely accepted definition and classification of disability, premised on the principles of equal opportunities, rights protection, and full participation. The act stipulates that a person with a disability certified by a medical authority as exceeding 40% disability qualifies as disabled.[20] The 2001 census of India acknowledges the complexity of defining and measuring disability, attributing it to the constraints of the census process. Consequently, the census employs its own disability classifications, encompassing five categories: sight, speech, hearing, movement, and mental, including conditions such as blindness, low vision, leprosy-cured status, hearing impairment, locomotion issues, mental retardation, and mental illness.[21] This definition has been institutionalized both administratively and legally by the Indian government. As per the 2011 census of India, 2.2% of the nation's population, equating to 26.8 million individuals, are classified as disabled. In contrast, World Bank data offers a broader range of 40 to 80 million persons with disabilities in India.[22] This variance notwithstanding, individuals with disabilities constitute a significant proportion of the Indian population.

In a nation grappling with challenges such as poverty, illiteracy, and unemployment, services, equal civil rights, and access to opportunities for disabled persons often take a backseat. Individuals with disabilities encounter multifarious barriers to full integration in society and the labor market. Their well-being is inextricably linked to their participation in the workforce, underscoring the need to explore the dynamics of disability in the Indian working-age population. This study endeavors to delineate the prevalence of disability among this demographic, analyze the ensuing consequences on their work experiences, and discern correlations. Additionally, it seeks to calculate a deprivation index for India and its constituent states, shedding light on the broader ramifications of disability within the nation.

METHODS

Data and sample

The meticulous examination of unit-level data from the 76th iteration (2018-2019) of India's National Sample Survey (NSS), conducted by the erudite National Sample Survey Organization (NSSO), is undertaken to address specific objectives. This round gathered data on potable water, sanitation, hygiene, habitation conditions, and disabilities. NSSO's historical rounds, starting in 1959, focused on disabilities, evolving to include mental disabilities in 2002. The 76th round, titled the "survey of persons with disabilities," comprehensively estimates disability incidence, explores causative factors, and assesses challenges faced in public spaces. The NSS, a quintessential national survey, is committed to providing data for policymakers and researchers. The NSS 76th round data encompasses 8,992 village/urban blocks, 118,152 households, and 576,569 individuals. The youth-focused inquiry involves 103,831 individuals, with 12,951 having disabilities in seven categories. Locomotor, visual, hearing, speech, mental retardation, mental illness, and other disabilities were considered. The methodology is detailed in the NSS 76th round (2018) report on persons with disabilities in India. This study utilizes the NSS 76th round's extensive data to shed light on disability prevalence, challenges faced, and the demographic landscape. The NSSO's commitment to comprehensive data collection stands as a testament to its role as a foundational resource for policymakers and researchers in India.

Sampling technique

For the survey conducted during the NSS 76th round, the 2011 census population of villages was meticulously extrapolated, incorporating judicious growth rates, and functioned as the underpinning sampling frame. Employing an intricate stratified two-stage sampling

design, this endeavor was executed with discerning precision. In the initial phase, villages and urban blocks were meticulously selected using the probability proportional to size with replacement methodology. Subsequently, in the second stage, a method of Simple Random Sampling without replacement was adroitly applied to cherry-pick households, a task undertaken with equal rigor in both rural and urban milieus. The stratified seven-second stage strata (SSS) assumed a paramount role in enumerating households within the designated village/UFS Block/SU. The genesis of the SSS involved a meticulous curation, drawing upon households encompassing individuals grappling with any of the eleven specified disabilities, including but not limited to cerebral palsy, dwarfism, hemophilia, multiple sclerosis, muscular dystrophy, acid attack victims, autism spectrum disorder, other chronic neurological conditions, Parkinson's disease, sickle cell disease, and thalassemia; an insightful methodology expounded upon in the NSSO Report of 2019.

Definitions

Working-age population

The age group 15-59 currently employed or seeking employment (NSSO Report, 2019).

Living arrangement

The arrangement that existed for the household member regarding where and with whom they lived. This was decided based on the composition of the household in which the person with a disability is a member, the household member's age and the household member's marital status.[23]

Household's usual monthly consumer expenditure (UMCE)

This information was collected to classify the households into different usual monthly per capita consumption expenditure (UMPCE) classes. A household's usual monthly consumer expenditure is the total monetary value of all goods and services consumed on a domestic account with a monthly regularity. Unusual expenditures, such as expenditures on social ceremonies, capitation fees, and hospitalization, were excluded for deriving the usual monthly consumer expenditure of the household. However, expenditure on durable household goods was included, and monthly expenditure on durable goods was derived by apportioning the total expenditure made by the household on durable goods during the last 365 days.[23]

Outcome variable

The dependent variable under scrutiny delineates the alteration or cessation of employment consequent to the advent of disability. The tripartite categorization of this dependent variable, germane to the current investigation, encapsulates instances characterized by the forfeiture of employment, the transmutation in the nature of one's vocation, and scenarios where there is an absence of both loss and alteration in occupational engagement attributable to the inception of disability.

Covariates

The independent variables for this analysis were drawn from the multifaceted socio-economic and demographic attributes of the respondents. These variables, each possessing a definitive and pivotal role, standing as noteworthy determinants influencing the vicissitudes in occupational status resulting from the onset of disability in the Indian context. The array of variables considered for the meticulous statistical analysis encompassed the nuanced dimensions of sex (distinguished by male and female categorizations), the dichotomy of residence delineated as rural and urban, religious affiliations spanning Hindu, Muslim, and other denominations, the varying states of marital alliances categorized into never married, currently married, or the states of being widowed, divorced, or separated, educational attainment graded from illiterate to levels reaching graduate and above, the economic strata characterized by usual monthly per capita consumption expenditure (UMPCE) divisions ranging from poorer to richest, and lastly, the geographical demarcations denoted as north, northeast, west, south, east, and central regions. Each of these variables, meticulously curated and refined, assumes the status of a potential determinant in the analytical exploration of the intricate dynamics surrounding the impact of disability on the alteration or cessation of occupational pursuits in the Indian milieu.

Statistical analysis

Univariate and bivariate analyses have been judiciously employed to ascertain the prevalence of individuals with disabilities across specified background characteristics. In delving deeper into the impact of disability onset on employment prospects among the working-age populace, a sophisticated method in the form of multinomial logistic regression has been invoked. Furthermore, a nuanced metric in the form of the disability deprivation index has been meticulously computed, affording insights into the comparative states of disability-related disadvantage across the geographic landscape of India.

The multinomial logistic regression methodology, a sophisticated statistical tool, serves as the crux for unraveling the intricate interplay of several independent variables whether they manifest as quantitative, categorical, or a fusion of both on the response variable harboring more than two distinct categories. Moreover, the multiple classification analysis has been used for finding the adjusted percentage (probabilities) of change of work, loss of work, and no loss or change of work derived from multinomial logit regression to complement better understanding and interpretation. A succinct exposition of

the functional form of the multinomial logit model, as applied in the current study, follows forthwith.

$$\text{Log}\left(\frac{\text{P1}}{\text{P3}}\right) = \text{A1} + \sum_{\text{j}}^{k} \text{B1j} \times \text{Xj; j} = 1,2 \ldots . \text{k}$$

$$\text{Log}\left(\frac{\text{P2}}{\text{P3}}\right) = \text{A2} + \sum_{\text{j}}^{k} \text{B2j} \times \text{Xj; j} = 1,2 \ldots . \text{k}$$

$$P1 + P2 + P3 = 1$$

Where P_1 is the probability of changing work, P_2 denotes the probability of loss of work, and P_3 is the probability of no loss or change of work after the onset of disability. The reference category in the present model is no loss or change of work. It may be noted that the three categories of work status due to the onset of disability are mutually exclusive and exhaustive; k signifies the number of independent variables.

Disability deprivation index

The derivation of the disability deprivation index (DDI) involves a meticulous process, incorporating four carefully chosen indicators expressed as percentages. These indicators encompass the incidence of work loss or alteration due to disability, levels of illiteracy, prevalence of beggars with disabilities, and difficulty accessing public transportation. The rationale behind these indicators stems from the stark reality in developing nations where individuals with disabilities face significant barriers to literacy and gainful employment, severely limiting their accessibility to literacy and employment. Transportation related impediments, supported by empirical evidence, profoundly impact the lives of individuals with disabilities. The inclusion of the indicator "beggars" is crucial, representing an occupational category dominated by impoverished and marginalized communities. Disabled beggars, often overlooked in global policy agendas, highlight the need for advocacy initiatives aimed at enhancing opportunities for individuals with disabilities.[24]

The disability deprivation index is calculated for a selected subset of twenty-three states and Union Territories, with others were excluded due to limited sample sizes for robust statistical analysis. The methodology draws inspiration from the human development report.[25] The computation unfolds through two distinct steps. In the initial step, the dimension index for each indicator within the composite index is meticulously calculated using the expression, where Vi is the actual value of the indicator, Vmin is the minimum observed value, and Vmax is the maximum value as a percentage among the indicators.

$$Dimension\ index = (Vi - Vmin)/(Vmax - Vmin)$$

In the subsequent step, the composite index (CI) is computed, assigning equal weights to each indicator. The operation is as follows, where Di signifies the dimension index, and N is the total number of dimensions indices, provides a comprehensive assessment of disability-related deprivation across states and Union Territories.[26]

$$Composite\ index = 1/N\ (Di1 + Di2 + Di3 + \cdots)$$

RESULTS

Prevalence of disability

Table 1 outlines disability prevalence across selected characteristics in the working-age and overall samples. Disability incidence is 1.8% in the working-age group and 2.2% overall. Gender differences show 2.2% prevalence in males and 1.5% in females among the working-age population. Among castes, other backward classes (OBC) exhibit 1.8% (working-age) and 2.2% (overall), while scheduled castes/scheduled tribes (SC/ST) show 2% and 2.3% in both categories. For the never-married, prevalence is 2.3% (working-age) and 1.6% (overall), contrasting with 4.1% (working-age) and 8.1% (overall) for widowed, divorced, or separated individuals. Educational gradients highlight 3.6% prevalence among illiterates (15-59 age) and 4% overall, with graduates showing the lowest prevalence.

Figure 1 displays an age-sex pyramid depicting the demographic composition of the total sample, with a focus on disabled individuals. The pyramid shows the lowest representation of disabled persons in the 0-4 age bracket, followed by a discernible rise in subsequent age groups. The peak of disabled individuals is observed in the 60-64 age range, closely followed by the 35-39 cohort. The graphical representation emphasizes a gender imbalance, with a higher prevalence of disabled females compared to males; an asymmetry that increases with advancing age.

Effect of disability on loss or change of work

Table 2 outlines the percentage distribution of the occupational status of individuals with disabilities before and after the onset of their disabling conditions. The data highlights a preference for self-employment among this demographic prior to disability, with the highest prevalence observed among those with hearing disabilities. Notably, individuals neither working nor available for employment dominate across all disability types, closely followed by self-employed individuals. After disability onset, there is a noticeable decline in the percentage of individuals engaged in various occupational statuses, indicating a transformative impact on their economic activities. Regular wage salaried positions are most common among those with locomotor disabilities, while individuals with speech and language disabilities face the highest unemployment rates.

Table 3 displays coefficients from the multinomial logit regression model, focusing on the likelihood of work changes or losses following the onset of disability. The

odds ratios under the log (P1/P3) and log (P2/P3) domains reveal insights into the probability of change and loss relative to the absence of any loss or change in work due to disability onset. The findings indicate that urban-dwelling disabled individuals have a less pronounced propensity for work loss compared to rural counterparts, possibly due to the availability of facilities in urban areas. Vulnerability to job loss is heightened for individuals aged 35-39 and those categorized as SC/ST, while graduates demonstrate a diminished likelihood. Living arrangements significantly impact susceptibility to job loss, with individuals cohabitating more susceptible. Mental disabilities correlate with an elevated probability of job loss, and regional variations show diminished likelihood in northeastern locales and increased predisposition in central and western regions. Marital status exhibits negligible influence on work change or loss following disability onset.

Table 4 provides a detailed analysis through multiple classification analysis tables, presenting adjusted percentages (probabilities) derived from multinomial logit regression. These percentages illuminate the dynamics of work change, work loss, and the absence of either following the onset of disability. Notably, 16% of males undergo a transition in work roles compared to 13% of females after disability onset. The age-related dimension is emphasized, with 55% of disabled individuals aged 15-34 experiencing work loss. Discrepancies in work loss are observed between never-married (63.9%) and currently married (51%) disabled individuals. Illiterate individuals show a heightened percentage of work loss. Mental retardation and mental illness significantly impact work loss, while individuals with hearing disabilities exhibit minimal percentages. Economic disparities are evident, with economically disadvantaged disabled individuals experiencing both heightened work opportunities and work loss. Regionally, the northeast stands out with the highest percentage of work transition, suggesting a unique impact of disability onset on occupational dynamics in this region.

Table 1: Prevalence of disability by selected background characteristics of the working-age population and total population, NSSO (2018-19), India.

Background characteristics	Prevalence	
	15-59 age group (n=58236)	All-age group (n=106894)
Place of residence		
Rural	2.0 (41112)	2.3 (74946)
Urban	1.5 (17124)	2 (31948)
Gender		
Male	2.2 (35124)	2.4 (61567)
Female	1.5 (23099)	2 (45305)
Caste		
Others	1.7 (14493)	2.1 (28194)
OBC	1.8 (25408)	2.2 (46121)
SC/ST	2 (18335)	2.3 (32579)
Religion		
Hindu	1.8 (46139)	2.2 (84561)
Muslim	1.8 (8182)	2 (14632)
Others	2 (3915)	2.5 (7731)
Marital status		
Never married	2.3 (22414)	1.6 (36697)
Currently married	1.5 (31261)	2.2 (50025)
Widowed/divorced/separated	4.1 (4561)	8.1 (20172)
Education level		
Illiterate	3.6 (22556)	4 (50745)
Up to middle	1.9 (21587)	1.7 (37882)
Up to higher secondary	1.1 (10884)	1.3 (13849)
Graduate and above	0.8 (3209)	1.1 (4418)
UMPCE		
Poorer	2.3 (11905)	2.8 (21384)
Poor	2 (11402)	2.2 (21400)
Middle	1.7 (12873)	2 (21770)
Richer	1.5 (10412)	1.9 (20979)
Richest	1.5 (11644)	1.9 (21361)
Region		
North	1.9 (7748)	2.2 (14280)

Continued.

Background characteristics	Prevalence	
	15-59 age group (n=58236)	All-age group (n=106894)
North East	1.3 (4826)	1.6 (8824)
West	1.6 (7198)	2 (13538)
South	1.8 (12333)	2.5 (23748)
East	1.9 (12887)	2.1 (23025)
Central	2 (13244)	2.3 (23479)
Total	1.8 (58236)	2.2 (106894)

Table 2: Percentage distribution of activity status of all types of disability, NSSO (2018-19), India.

Activity status	Visual	Hearing	Speech and language	Locomotor	Mental retardation	Mental illness	Others
Employment status before the onset of disability							
Self employed	13.1	28.8	25.7	17.6	9.2	9.4	10
Regular wage salaried	1.5	2.7	4.9	4.3	_	1.7	2.9
Casual labor	4.1	12.6	8.6	6	3.3	5.7	5.4
Unemployed	0.1	0.2	1.4	0.4	_	0.1	0.4
Neither work nor available for work	81.2	55.7	59.4	71.9	87.5	83.1	81.2
Employment status after the onset of disability							
Self employed	8	17.2	12.3	13.9	2.1	4.8	9
Regular wage salaried	1.4	2	2.4	4.1	0.4	0.8	2.8
Casual labor	2.7	8.6	9.7	5	1.5	1.5	4.8
Unemployed	0.6	0.6	2.2	1	0.2	0.2	1.2
Neither work nor available for work	87.2	71.7	73.5	76	96	90.8	82.3
N	10107	10341	8631	58269	8154	6675	2990

Table 3: Multinomial logit regression of loss or change of work due to onset of disability on working-age population (15-59) by their background characteristics, NSSO (2018-19), India.

Background characteristics	Change of work log (P1/P3)		Loss of work (P2/P3)	
	RRR	CI	RRR	CI
Place of residence				
Rural ®				
Urban	0.746***	[0.681,0.818]	0.831***	(0.775,0.891)
Gender				
Male ®				
Female	0.966	[0.884,1.056]	0.914*	(0.853,0.980)
Age group				
15-34 ®				
35-59	0.725***	[0.630,0.835]	1.238*	(1.092,1.403)
Caste				
Others ®				
OBC	0.999	[0.912,1.095]	1.043**	(0.971,1.121)
SC/ST	0.866**	[0.782,0.958]	1.054**	(0.974,1.140)
Marital status				
Never married ®				
Currently married	1.039	[0.724,1.490]	0.768	(0.582,1.012)
Widowed/divorced/separated	1.07	[0.814,1.408]	0.835	(0.680,1.027)
Education level				
Illiterate ®				
Up to middle	0.878**	[0.805,0.959]	0.744***	(0.695,0.797)
Up to higher secondary	0.706***	[0.628,0.792]	0.475***	(0.433,0.521)
Graduate and above	0.534***	[0.442,0.645]	0.358***	(0.310,0.414)

Continued.

Background characteristics	Change of work log (P1/P3)		Loss of work (P2/P3)	
	RRR	CI	RRR	CI
Living arrangement				
Living with spouse and other household®				
Living with spouse only	1.057	[0.930,1.203]	0.900*	(0.815,0.995)
Living without spouse but with parents	0.886	[0.616,1.273]	1.561**	(1.184,2.057)
Children	0.885	[0.654,1.197]	1.093	(0.867,1.376)
Alone	1.05	[0.748,1.472]	0.674**	(0.518,0.877)
Others	0.969	[0.691,1.358]	1.035	(0.800,1.340)
Type of disability				
Visual ®				
Hearing	0.394***	[0.336,0.461]	0.130***	(0.116,0.146)
Speech and language	0.494***	[0.330,0.740]	0.459***	(0.356,0.593)
Locomotor	1.847***	[1.627,2.096]	1.293***	(1.184,1.412)
Mental retardation	0.732	[0.333,1.605]	3.300***	(2.139,5.091)
Mental illness	1.131	[0.917,1.395]	2.016***	(1.748,2.326)
Others	1.119	[0.813,1.542]	1.707***	(1.385,2.104)
UMPCE				
Poorer ®				
Poor	0.95	[0.845,1.069]	0.917	(0.837,1.004)
Middle	1.067	[0.943,1.208]	1.007	(0.914,1.109)
Richer	1.091	[0.959,1.241]	0.968	(0.876,1.071)
Richest	0.856*	[0.739,0.990]	0.884*	(0.791,0.988)
Region				
North ®				
North East	0.742*	[0.580,0.948]	0.496***	(0.409,0.601)
West	1.373***	[1.198,1.575]	1.191**	(1.068,1.327)
South	0.978	[0.865,1.106]	1.174***	(1.070,1.288)
East	1.002	[0.883,1.137]	0.903*	(0.819,0.996)
Central	1.056	[0.940,1.186]	1.852***	(0.779,0.933)

*P<0.05, **p<0.01, ***p<0.001® is reference category

Table 4: Unadjusted and adjusted percentage of loss or change of work due to the onset of disability on working-age population by their background characteristics, NSSO (2018-19), India.

Background characteristics	No loss or change of work		Change of work		Loss of work	
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Place of residence						
Rural	25.6	26.4	16.5	16.0	57.9	57.6
Urban	30.6	26.7	14.6	15.0	54.8	58.3
Gender						
Male	27.1	25.3	15.9	16.2	57.0	58.5
Female	27.2	29.8	15.9	13.9	57.0	56.4
Age group						
15-34	27.4	26.2	25.0	18.8	47.6	55.0
35-59	29.4	29.5	19.7	18.5	50.9	52.0
Caste						
Others	29.5	28.3	16.2	15.9	54.3	55.9
OBC	26.5	25.9	15.5	16.0	57.9	58.1
SC/ST	26.9	25.9	15.8	14.7	57.3	59.3
Marital status						
Never married	22.6	22.3	15.0	13.8	62.4	63.9
Currently married	28.0	29.7	17.4	18.3	54.6	52.0
widowed/divorced/separated	24.1	25.3	12.1	11.8	63.8	62.9
Education level						

Continued.

Background characteristics	No loss or change of work		Change of work		Loss of work	
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Illiterate	23.6	22.9	14.2	13.3	62.2	63.8
Up to middle	27.2	27.1	17.4	17.0	55.4	55.9
Up to higher secondary	34.7	34.1	19.6	19.8	45.7	46.1
Graduate and above	41.5	41.1	16.2	17.6	42.3	41.3
Living arrangement						
Living with spouse and other household	28.2	29.9	17.8	18.8	54.0	51.4
Living with spouse only	27.3	28.7	15.7	16.2	57.1	55.1
Living without spouse but with parents	21.1	21.9	14.2	13.6	64.8	64.6
Children	23.6	25.0	11.2	11.0	65.2	64.1
Alone	29.1	31.2	17.1	17.3	53.8	51.5
Others	24.3	25.3	13.4	13.8	62.4	60.8
Type of disability						
Visual	25.4	25.5	11.6	12.2	63.0	62.3
Hearing	65.5	65.6	11.8	12.1	22.8	22.3
Speech and language	45.5	42.2	10.3	11.8	44.2	46.0
Locomotor	21.6	22.0	18.3	19.3	60.1	58.8
Mental retardation	13.8	9.4	4.6	4.1	81.6	86.5
Mental illness	18.1	16.7	10.0	9.6	71.9	73.7
Others	21.1	20.3	9.5	10.8	69.5	68.8
UMPCE						
Poorer	25.8	26.6	16.1	16.4	58.2	57.1
Poor	27.4	25.9	16.2	16.2	56.4	57.9
Middle	25.3	26.2	16.9	15.9	57.9	57.8
Richer	26.2	26.0	16.6	15.0	57.2	59.0
Richest	30.3	27.9	14.0	14.4	55.8	57.8
Region						
North	27.1	26.4	15.5	15.0	57.4	58.5
North East	44.4	41.0	15.6	15.8	40.1	43.2
West	23.4	23.1	18.2	17.2	58.4	59.8
South	24.7	25.3	13.2	12.6	62.1	62.1
East	27.7	27.3	16.4	15.8	55.9	56.9
Central	28.1	27.0	17.6	17.7	54.3	55.3
Total	25.2	26.5	15.3	15.6	59.5	57.9

Table 5: Disability deprivation index of all Indian states, NSSO (2018-19), India.

States	(D_1)	(D_2)	(D_3)	(D_4)	Di1	Di2	Di3	Di4	Deprivation index	Rank
Kerala	70.74	18.68	53.49	5.6	0.56	0	0.25	0.3	0.28	1
Delhi	53.96	27.7	62.75	6.94	0	0.21	0.62	0.42	0.31	2
Chhattisgarh	68.9	43.96	47.42	6.81	0.5	0.59	0	0.41	0.37	3
Tripura	81.28	35.72	56.79	2.14	0.91	0.4	0.38	0	0.42	4
Assam	54.68	38.5	54.77	13.49	0.02	0.46	0.3	1	0.45	5
Haryana	69.63	45.62	64.13	3.04	0.52	0.63	0.68	0.08	0.48	6
Himachal Pradesh	83.97	37.41	59.87	2.26	1	0.44	0.5	0.01	0.49	7
Tamil Nadu	69.17	45.62	64.94	4.26	0.51	0.63	0.71	0.19	0.51	8
Gujarat	76.12	39.83	57.95	7	0.74	0.49	0.43	0.43	0.52	9
Odisha	67.88	49.31	59.2	8.27	0.46	0.71	0.48	0.54	0.55	10
West Bengal	70.49	44.22	69.78	5.49	0.55	0.6	0.9	0.3	0.59	11
Karnataka	72.41	49.05	67.74	4.73	0.61	0.71	0.82	0.23	0.59	12
Uttarakhand	66.28	38.24	63.2	12.54	0.41	0.46	0.64	0.92	0.61	13
Maharashtra	76.65	38.06	68.63	7.91	0.76	0.45	0.86	0.51	0.64	14

Continued.

States	(D_1)	(D_2)	(D_3)	(D_4)	Di1	Di2	Di3	Di4	Deprivation index	Rank
Jharkhand	72.99	51.37	66.93	7.1	0.63	0.76	0.79	0.44	0.66	15
Uttar Pradesh	71.26	54.87	69.4	7.13	0.58	0.84	0.89	0.44	0.69	16
Madhya Pradesh	75.59	47.77	65.85	9.13	0.72	0.68	0.75	0.62	0.69	17
J&K	70.47	53.12	71.16	8.21	0.55	0.8	0.96	0.53	0.71	18
Punjab	63.98	48.68	72.13	11.68	0.33	0.7	1	0.84	0.72	19
Telangana	81.28	59.35	66.7	6.65	0.91	0.95	0.78	0.4	0.76	20
Andhra Pradesh	80.99	61.57	61.05	8.97	0.9	1	0.55	0.6	0.76	21
Rajasthan	78.47	55.39	69.59	9.79	0.82	0.86	0.9	0.67	0.81	22
Bihar	79.82	52.4	71.32	10.43	0.86	0.79	0.97	0.73	0.84	23
India	73.18	47.78	65.8	7.52	0.64	0.68	0.74	0.47	0.63	

D1-Loss or change of work, D2-illiteracy, D3-difficulty in public transport, D4-beggars.

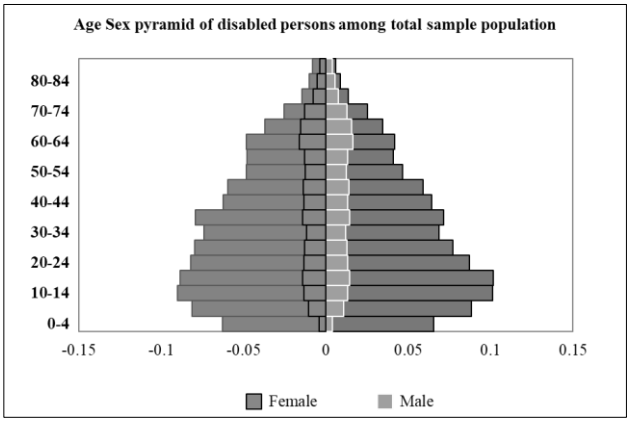

Figure 1: Age sex pyramid of disabled persons among total sample population, NSSO (2018-19), India.

Level of deprivation due to disability: Disability deprivation index

The research on disability prevalence in India reveals a nuanced narrative with intricate patterns and socio-economic differentials. The overall disability prevalence is 2.2%, affecting nearly one million individuals nationwide. Rural areas exhibit higher prevalence than urban regions, particularly favoring males over females. Religious differences show modest impacts, while caste distinctions become more significant. An intersectional approach is crucial to understand disability, recognizing its interplay with social structures. The age group of 60-79 is a primary contributor, reflecting an escalating trend amid the growing elderly population. Surprisingly, the working-age demographic holds the highest observed disability prevalence, prompting a need for deeper investigation into challenges faced during prime working years. Post-onset employment status examinations reveal employment loss, especially among SC/ST groups, indicating discrimination and a lack of recognition for disabled persons' capabilities. Vulnerabilities are accentuated for those cohabiting without a spouse, emphasizing familial and societal challenges. Discrimination, rooted in low expectations, obstructs a conducive work environment, necessitating attitudinal shifts and social inclusion programs. The study underscores informal sector employment prevalence, notably among illiterate and disabled populations engaged in microenterprises or self-employment. Wealthier segments experience lower vulnerability, linked to the prevalence of illiteracy in the informal sector. The disability deprivation index urges policymakers to reevaluate measures, focusing on states with alarmingly high deprivation indexes. The research emphasizes the urgency of addressing this critical facet of societal development.

DISCUSSION

The research on disability prevalence in India uncovers a nuanced narrative marked by complex patterns and socio-economic differentials. The overall prevalence stands at 2.2%, translating to nearly one million cases across the nation.[27] However, beneath this aggregate figure, rural regions exhibit a disproportionately higher prevalence compared to urban areas, a gender disparity notably favoring males over females.[23] This gender skew emphasizes the need for comprehensive exploration of the unique challenges faced by women with disabilities, warranting dedicated research attention. Religious distinctions, though yielding modest variations, fade in significance compared to differences observed among various castes.[23] This calls for an intersectional approach, recognizing disability's interplay with social structures and hierarchies. The research highlights the stark reality that the illiterate segment bears a higher burden of disability, emphasizing the importance of education in mitigating this disparity, aligning with the call for inclusive education as a pivotal instrument for societal transformation.[28]

A compelling demographic insight emerges as the age group of 60-79 contributes significantly to disability prevalence, reflecting an escalating trend alongside the increasing elderly population.[23] Surprisingly, the middle-aged or working-age demographic holds the highest observed disability prevalence, warranting deeper investigation into the challenges faced by individuals in their prime working years. Examining post-onset employment status reveals a disturbing trend, particularly among SC/ST groups, where a substantial portion loses employment, signaling discriminatory practices and a lack of recognition for the capabilities of disabled persons.[28]

The vulnerability of those cohabiting with parents and without a spouse accentuates familial and societal challenges. Discrimination, rooted in low expectations and negative attitudes, hinders a conducive work environment, emphasizing the need for attitudinal shifts and social inclusion programs.[29] The study acknowledges the intricate nature of disability-based employment discrimination, manifesting as a complex challenge dependent on contextual factors in both workplace and institutional environments.[29] Anti-discrimination laws, while crucial, exhibit variable impacts on earnings and employment differentials across disability statuses.[30] The research delves into the pragmatic question of the impact of disability on employment, recognizing its nuanced nature across diverse contexts. Highlighting the prevalence of informal sector employment in developing countries, especially among illiterate and disabled populations, the study reveals that the wealthiest echelons experience lower vulnerability to employment alterations.[31] This underscores the need for targeted interventions and policy measures to address the unique employment challenges faced by these vulnerable populations. The scarcity of anti-discrimination legislation, workplace accommodations, and vocational rehabilitation programs in developing nations contributes to a discernible employment gap for persons with disabilities.[32] The study argues for policy advocacy and comprehensive measures to bridge the disability employment gap in these regions facing an unemployment crisis.

The disability deprivation index, a key metric, emerges as a potent tool for gauging relative deprivation across Indian states.[23] Factors like loss or change of work, illiteracy, transportation challenges, and instances of begging contribute to this index. Kerala ranks lowest, indicating a more favorable environment, while Bihar claims the top spot, signifying heightened deprivation. This calls for policymakers to reevaluate and recalibrate existing measures, emphasizing states with alarmingly high deprivation indexes. The research underscores the marginalized status of people with disabilities in developmental research, redirecting scholarly focus toward their unique challenges.[30] The insights offer a foundation for informed policy-making, advocating for social inclusion, attitudinal shifts, and targeted interventions to uplift and empower individuals with disabilities in India. The research serves as a testament to the urgency of addressing this critical facet of societal development.

CONCLUSION

The aforementioned analyses delineate the profound predicament confronting the disabled populace in India. Despite concerted efforts by the government and non-governmental organizations to furnish an array of amenities for the disabled, these services remain accessible only to a circumscribed segment of the disabled demographic. There exists an imperative to amplify the scope of the dispensed facilities and augment outreach initiatives. The prevailing state of affairs for the disabled populace, particularly with regard to their occupational status, paints a somber tableau. The disability deprivation index underscores the destitute living conditions prevalent among the disabled across numerous states. Furthermore, a substantial majority of the disabled population grapples with challenges in the realm of day-to-day existence. It is undeniably incumbent upon society to effectuate a discernible amelioration in the quality of life for individuals contending with disabilities.

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