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RESEARCH ARTICLE

AN EMPIRICAL STUDY ON THE PREVALENCE OF CHILDREN WITH DISABILITY IN MANGALORE

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ABSTRACT

Children with disability are an important social concern in the community. This study aims to report the different types of disability among school going children in Mangalore. Data were collected from the Inclusive Education Resource Centre during 2011-2012. Demographic details of each child, sex, age, religion, type of disability, percentage of disability were documented and analyzed by SPSS. The prevalence for all disabilities in the studied group was found to be 2.06%; of this 0.69% with vision disability, 0.45% with mental disability, 0.12% with hearing impairment and 0.09% were speech impaired. Early intervention and health services may help the children in improving the quality of life.

KEY WORDS: Disability, Prevalence, Children, Mangalore

INTRODUCTION:

Disability is a vulnerable situation in any community around the world. Disability of an individual in any form physical or mental calls for special attention, extra demands and support from others. According to WHO [1] Disability is any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being. The International Classification of Functioning, Disability and Health classify disability into body functions and body structures disability [2]. According to Global Burden of Disease disability refers to loss of functioning in health domains such as mobility, cognition, hearing and vision [3]. Many factors contribute to increase in population of disabled such as chronic diseases, insufficient medical care, malnutrition, birth related complications and accidents. World Health Organization (WHO) estimates a disability of 4% for developing countries and 7% for industrialised countries [4]. The prevalence of disability in children is reported to be 1.2% in a rural community in southern Thailand [5], 1.36% in children below six years in China [6], 1.8% in a cross sectional survey in Central Region, Ghana [7], 4.9% in children over 5 years in Northern Ethiopia [8], 6.3% in children below 16 years in Saudi Arabia [9], 3.76 per thousand in a representative Saudi population [10]. In India according to 2001 census [11] 2.13% of the total population are disabled, while the National Sample Survey Organization (NSSO) [12] estimated 1.8% of Indian population with disabilities. A community based study in Karnataka reported 6.3% of all types of disability of which 36.7% of mental disability was most common [13]. In another study among the same population 2.3% prevalence of mental disability was observed [14]. A prevalence of 2.02% disability has been reported in two villages of Karnataka [15]. A community based study in Rajasthan among children below 14 years reported 7% of disability rate [16]. The prevalence of disability among children below the age of 6 years was 7638 per lakh population [17]. According to ICMR Task Force study, the prevalence of disability among children below six years of age was 8.8 per thousand in Delhi, 6.5 per thousand in Jaipur and 12.6 per thousand in Lucknow [18]. The prevalence of disability showed proportionately higher among females [11,12,14,15,19], while some studies reported more among males [13]. According to NSSO [12] survey the disability prevalence is reported to be higher (1.85%) in rural compared to urban population (1.5%). Children with disability are an important public health concern. Statistical analysis of them is fundamental in the evaluation, management and development of rehabilitation programmes. The disabled group require broad range of services. A variety of factors influence their access to needed health and support services. Despite many support facilities, many children and their families are not satisfied with the services they receive. Accurate data of children with disability is imperative to formulate policies and to provide access to the unmet needs of the children and their families. This study provides prevalence and characteristics of disability among school going children in Mangalore which to the best of our knowledge is not reported.

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METHODS:

Mangalore taluk is situated in Karnataka state in Southwest India. According to the census of population 2011 [20], the total population is 9,898,56 (2,09,578 rural and 7,80,278 urban). In this descriptive study, the data were obtained from Inclusive Education Resource Centre (IERC) of Mangalore during the year 2011-2012. The IERC is a programme by the Government of India to educate children with disabilities under the Sarva Shiksha Abhiyan (Education for all movement). The IERC adopts a stratified multistage sampling design for collecting the disability data. A child is considered to be disabled who have any of the ten types of disabilities as has been classified by The Ministry of Human Resource Development (MHRD). The disabilities are Autistic Spectral Disorders (Aut), Cerebral palsy (CP), Hearing impaired (HI), Learning disability (LD), Low vision (LV), Mentally retarded (MR), Multiple disability (MD), Orthopedically impaired (OI), Speech impaired (SI), and Total blind (TB). Mangalore taluk is divided into North and South block which are further divided into thirteen and fifteen clusters respectively. The prevalence reported in urban includes data of 317 schools of which 4 are special schools. The total number of school going children between the age 5 to 17 years is 67,246 of which 1468 are children with special needs. Similarly there are 322 schools in rural of which 2 are special schools and one integrated school. There are 70,121 school going children of which 1355 children are with special needs. The details of each child which includes name, date of birth, age, sex, religion, fathers name, mothers name, class, type of disability and disability percentage from all the schools in each cluster will be consolidated. This study is approved by the Institutional Ethics Committee. All the collected data were tabulated and analyzed by SPSS version 13.0 for Windows. Findings are described in terms of percentages. Chi-square test and Fisher's exact test was carried out to test the differences between proportions. A probability level of less than 0.05 is considered significant.

RESULTS:

The prevalence of all types of disability in Mangalore taluk is 2.06% among school going children (Table 1). Low vision (LV) was the most prevalent disability with 0.66% being affected and cerebral palsy (CP) the least with 0.02% prevalence. About 0.45% (Aut + MR) of children showed intellectual disability. The frequency of different disabilities by gender and location is provided in Table 2. Highest prevalence was observed in females with LV in both rural and urban area (29.3%; 41.6%). No significant difference was seen between males and females in either location among mentally retarded (MR) children. Prevalence of all disabilities between the sexes (rural $p<0.0001$; urban $p=0.007$) and between rural and urban ($p<0.0001$) was highly significant. Religion wise prevalence of disabilities is given in Table 3. Learning disability (LD) was highest among rural Hindus (22.1%) and others (33.3%) in urban area; MR was more in urban Christians (34.5%), whereas low vision was most prevalent in all other groups. Prevalence of all disabilities between the religions (rural $p=0.005$; urban $p=0.0001$) and between rural and urban areas ($p<0.0001$) was highly significant. Table 4 records the distribution of different disabilities by age group. LD was most frequent in rural area between 5 to < 9 years (25.4%), whereas in urban MR was highest in 5 to < 9 (30.39%) and 13 to 17 years (32.8%) age group. Prevalence of all disabilities between the different age groups (rural $p<0.001$; urban $p<0.0001$) and between rural and urban areas ($p<0.0001$) was highly significant. Distribution of the disabled children according to their percentage of disability is shown in Table 5. The distribution of rural children among the highest (> 75) and the lowest (< 25) percentage of disability were seen in Hearing impairment (29.9%; 100%). Urban children with MR showed higher prevalence among < 25, 50 to 75 and > 75 disability percentage groups. Prevalence of all disabilities between the different groups of disability percentage (rural $p<0.001$; urban $p<0.0001$) and between rural and urban areas ($p<0.0001$) was highly significant.

Table 1: Prevalence rates of different disabilities among school going children in Mangalore

Disability type	Frequency	Prevalence percentage*
Autism	62 (2.2)	0.04
Cerebral Palsy	28 (1.0)	0.02
Hearing impaired	172 (6.1)	0.12
Learning disability	506 (17.9)	0.37
Low vision	905 (32.1)	0.66
Mentally retarded	561 (19.9)	0.41
Multiple disability	188 (6.7)	0.14
Orthopaedical impaired	241 (8.5)	0.18
Speech impaired	122 (4.3)	0.09
Total blind	38 (1.3)	0.03

Total	2823 (100)	2.06

Percent in parenthesis

*Prevalence is calculated from total number of school going children in Mangalore taluk

Table 2: Prevalence rate of different disabilities by sex and location

Disability type	Rural		Total	Urban		Total
	Male	Female		Male	Female	
Autism	8 (1.0)	0 (0)	8 (0.6)	37 (4.4)	17 (2.7)	54 (3.7)
Cerebral Palsy	7 (0.9)	5 (0.9)	12 (0.9)	11 (1.3)	5 (0.8)	16 (1.1)
Hearing impaired	67 (8.5)	62 (10.9)	129 (9.5)	19 (2.2)	24 (3.9)	43 (2.9)
Learning disability	211 (26.8)	99 (17.4)	310 (22.9)	134 (15.8)	62 (10.0)	196 (13.4)
Low vision	170 (21.6)	167 (29.3)	337 (24.9)	310 (36.6)	258 (41.6)	568 (38.7)
Mentally retarded	121 (15.4)	88 (15.5)	209 (15.4)	203 (23.9)	149 (24.0)	352 (24.0)
Multiple disability	70 (8.9)	52 (9.1)	122 (9.0)	39 (4.6)	27 (4.4)	66 (4.5)
Orthopaedical impaired	82 (10.4)	74 (13.0)	156 (11.5)	41 (4.8)	44 (7.1)	85 (5.8)
Speech impaired	43 (5.5)	20 (3.5)	63 (4.6)	34 (4.0)	25 (4.0)	59 (4.0)
Total blind	7 (0.9)	2 (0.4)	9 (0.7)	20 (2.4)	9 (1.5)	29 (2.0)
Total	786 (100)	569 (100)	1355 (100)	848 (100)	620 (100)	1468 (100)
	x^2 = 34.60, p < 0.0001 HS			x^2 = 22.70, p = 0.007 HS		
	x^2 = 49.786.919, p < 0.0001 HS					

Percent in parenthesis

Table 3: Prevalence rate of different disabilities by type of religion

Disability type	Rural				Urban				Total
	Hindu	Muslim	Christian	Others	Hindu	Muslim	Christian	Others	
Autism	5 (0.7)	2 (0.3)	1 (1.3)	0	37 (4.1)	5 (1.5)	12 (5.0)	0	62
Cerebral Palsy	8 (1.2)	4 (0.7)	0 (0)	0	8 (0.9)	5 (1.5)	3 (1.3)	0	28
Hearing impaired	87 (12.7)	37 (6.3)	5 (6.4)	0	25 (2.8)	10 (3.0)	7 (2.9)	1 (8.3)	172
Learning disability	152 (22.1)	143 (24.2)	15 (19.2)	0	108 (12.0)	60 (18.2)	24 (10.1)	4 (33.3)	506
Low vision	142 (20.7)	170 (28.8)	25 (32.1)	0	344 (38.2)	145 (44.1)	75 (31.5)	4 (33.3)	905
Mental retardation	108 (15.7)	90 (15.3)	11 (14.1)	0	204 (22.6)	64 (19.5)	82 (34.5)	2 (16.7)	561

Multiple disability	55 (8.0)	56 (9.5)	11 (14.1)	0	47 (5.2)	10 (3.0)	9 (3.8)	0	188
Orthopaedical impaired	90 (13.1)	60 (10.2)	6 (7.7)	0	52 (5.8)	16 (4.9)	16 (6.7)	1 (8.3)	241
Speech impaired	35 (5.1)	24 (4.1)	4 (5.1)	0	39 (4.3)	12 (3.6)	8 (3.4)	0	122
Total blind	5 (0.7)	4 (0.7)	0 (0)	0	25 (2.8)	2 (0.6)	2 (0.8)	0	38
Total	687 (100)	590 (100)	78 (100)	0	901 (100)	329 (100)	238 (100)	12 (100)	2823
	x^2 = 36.85, p = 0.005 HS				x^2 = 46.84, p < 0.0001 HS				
	x^2 = 70.210, p < 0.0001 HS								

Percent in parenthesis

Table 4: Prevalence rate of different disabilities by age group

Disability type	Rural			Urban			Total
	5 to <9	9 to <13	13 to 17	5 to <9	9 to <13	13 to 17	
Autism	2 (0.5)	5 (0.6)	1 (0.7)	17 (4.4)	32 (4.1)	5 (1.6)	62
Cerebral Palsy	6 (1.4)	5 (0.6)	1 (0.7)	6 (1.6)	4 (0.5)	6 (1.9)	28
Hearing impaired	24 (5.8)	76 (9.5)	29 (20.6)	15 (3.9)	20 (2.6)	8 (2.6)	172
Learning disability	105 (25.4)	191 (23.9)	14 (9.9)	50 (13.0)	98 (12.6)	48 (15.6)	506
Low vision	74 (17.9)	216 (27.0)	47 (33.3)	102 (26.49)	383 (49.4)	83 (26.9)	905
Mental retardation	78 (18.8)	116 (14.5)	15 (10.6)	117 (30.39)	134 (17.3)	101 (32.8)	561
Multiple disability	55 (13.3)	51 (6.4)	16 (11.3)	24 (6.23)	25 (3.2)	17 (5.5)	188
Orthopaedical impaired	46 (11.1)	95 (11.9)	15 (10.6)	25 (6.49)	39 (5.0)	21 (6.8)	241
Speech impaired	19 (4.6)	41 (5.1)	3 (2.1)	21 (5.45)	30 (3.9)	8 (2.6)	122
Total blind	5 (1.2)	4 (0.5)	0 (0)	8 (2.08)	10 (1.3)	11 (3.6)	38
Total	414 (100)	800 (100)	141 (100)	385 (100)	775 (100)	308 (100)	2823
	x^2 = 78.61, p < 0.001 HS			p < 0.0001 HS			
	x^2 = 206.4, p < 0.0001 HS						

Percent in parenthesis

Table 5: Prevalence rate of different disabilities by percentage of disability

Disability type	Rural				Urban					Total
	<25	25 to <50	50 to <75	>75	< 25	25 to <50	50 to < 75	>75	NA	
Autism	0	2 (0.3)	2 (0.6)	4 (1.8)	3 (42.9)	10 (1.5)	26 (5.7)	6 (4.5)	9 (4.8)	62
Cerebral Palsy	0	1 (0.1)	5 (1.5)	6 (2.7)	0 (0)	6 (0.9)	6 (1.3)	3 (2.3)	1 (0.5)	28
Hearing impaired	1 (100)	27 (3.4)	35 (10.4)	66 (29.9)	0 (0)	9 (1.3)	21 (4.6)	8 (6.0)	5 (2.6)	172
Learning disability	0	244 (30.7)	66 (19.5)	0 (0)	0 (0)	152 (22.3)	41 (9.0)	2 (1.5)	1 (0.5)	506
Low vision	0	258 (32.5)	73 (21.6)	6 (2.7)	1 (14.3)	360 (52.8)	78 (17.1)	0 (0)	129 (68.3)	905
Mental retardation	0	95 (11.9)	72 (21.3)	42 (19.0)	3 (42.9)	105 (15.4)	181 (39.6)	53 (39.8)	10 (5.3)	561
Multiple disability	0	38 (4.8)	21 (6.2)	63 (28.5)	0 (0)	5 (0.7)	33 (7.2)	19 (14.3)	9 (4.8)	188
Orthopaedical impaired	0	79 (9.9)	53 (15.7)	24 (10.9)	0 (0)	19 (2.8)	50 (10.9)	7 (5.3)	9 (4.8)	241
Speech impaired	0	51 (6.4)	11 (3.3)	1 (0.5)	0 (0)	16 (2.3)	21 (4.6)	6 (4.5)	16 (8.5)	122
Total blind	0	0 (0)	0 (0)	9 (4.1)	0 (0)	0 (0)	0 (0)	29 (21.8)	0 (0)	38
Total	1	795	338	221	7	682	457	133	189	2823
	p < 0.001 HS				p < 0.0001 HS					
	p < 0.0001 HS									

Percent in parenthesis
NA – Not available

DISCUSSION:

The Inclusive Education Resource Centre plays a very important role of bringing children with disabilities into mainstream for education, health and other facilities. An up-to-date statistics on different disabilities by sex, age, locality of residence and percentage of disability will help in capacity building, and provide basic services to improve the quality of life. Most of the published data provide disability prevalence in different communities which ranges between 4.8% to 8.5% [8,21,22]. WHO estimates that 5% of children aged 0 – 14 years have moderate or severe disability, with estimates ranging from 2.9% in higher-income countries to 4.4 – 6.4% in low-income and middle-income countries [23]. The present study reports 2% prevalence of different types of disability among school going children which is less when compared to WHO report[23]. This data on children with disabilities is the initial step in the public health approach to design and provide basic services to protect the health of children and prevent the advancement of disability.

CONCLUSION:

Children with disability are an important public health concern. Providing statistics of population suffering from physical or mental disability is a challenge. This study provides the prevalence of disability among school going children in Mangalore. The above information will help health care providers and policy makers to strengthen existing services and provide new strategies to improve the physical and mental health of children and thereby improve their quality of life. Further, research on causes and risk factors of the disabled are limited. These gaps have to be filled by Integrated Research Programmes by studying the various causes, evaluation, management and prevention strategies of children with disability.

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