

## Developmental Delay and Disability among Under - 5 Children in a Rural ICDS Block

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We conducted this study to assess the prevalence of developmental delay, deformity and disability among 0-5 age group children in Pattanakkad rural ICDS block, selected at random from among the ICDS blocks in Alappuzha District, Kerala, India. Of 12520 children upto 5 years in this block, there were a total of 311 children with developmental delay, deviation, deformity or disability giving a prevalence of 2.5% (95% CI, 2.22 – 2.77). The prevalence of developmental disabilities up to 2 years was 2.31 (95% CI, 1.91 – 2.71) and from 2 – 5 years 2.62% (95% CI, 2.25 – 2.99). The prevalence obtained in the study has important policy implications for identifying childhood disabilities in the community.

**Keywords:** Cerebral palsy, Developmental assessment, Developmental delay, Disability, Prevalence.

The World Health Organization (WHO) estimates that about 10% of the world's population has some form of disability(1). A national sample of 9854 two to three year olds studied in Israel showed a disability rate of 8.9%(2). In a population-based survey of 5478 two to nine year olds in Jamaica, an overall prevalence of 9.4% was reported(3). Using a two-phase design survey of 22000 two to nine year old children, Durkin, et al.(4), reported childhood disability prevalence of 15.2% in Jamaica, 14.7% in Pakistan and 8.2% in Bangladesh. Statistics from different sources indicate that in India, 3.8% of the population has some form of disability and the same was found to be more common among children of the lowest socioeconomic class families when compared with the next-to-lowest class families(5). A Nation wide survey under NSSO 2002 in India, showed a prevalence rate of 1.77% disabilities among all age groups(6). In a house to house survey of 3560 children 0–6 years of age at Delhi, disability was identified in 6.8% of those assessed(7). Infants with neurodevelopmental abnormalities need early

therapy, and because of this they should be detected as soon as possible. Currently, no widely accepted method of early evaluation exists(8).

This study was conducted to assess the prevalence of developmental delay, deformity and disability among children under 5 years of age in a rural ICDS block. A two-phase methodology for surveying childhood disabilities was preferred in such populations where professional resources are extremely limited. This involved door-to-door surveys and individualized screening of all children screening positive and a sample of those screening negative(9).

### METHODS

The study was conducted at Pattanakkad rural ICDS block, selected at random from the ICDS blocks in Alappuzha district situated in south Kerala. All children under 5 years of age, residing in 191 anganwadi areas representing 8 panchayats in Pattanakkad ICDS block, were included in this study with no exclusion criteria. Cross-sectional survey design was used for this study.

Developmental delay was assessed among babies upto 2 years of age using Trivandrum Developmental Screening Chart (TDSC) and above 2 years using Denver Developmental Screening Test (DDST)(10,11). Amiel Tison Passive Angle Method was used to detect muscle tone abnormalities, hypotonia or hypertonia, in both the age groups(12). Anganwadi workers of the ICDS, using the registers available with them, contacted parents of every child below 5 years of age in their anganwadi area and motivated them to attend the anganwadi on specified days. Developmental assessment was done by trained personnel, and detailed clinical examination, appropriate referral and therapy for identified delay/disability cases were provided by a pediatrician and physiotherapist together.

## RESULTS

There were a total of 12520 children under 5 years of age in the Pattanakkad ICDS block, Alappuzha district as per records available with the anganwadi workers. Out of this 6272 were males and 5902 were females. 11027 (88%) were born at term and 356 (3%) were preterm delivery. 1166 (9%) mothers were not sure of the gestational age at the time of delivery. There were a total of 5450 children in the age group up to 2 years and among this 4508 children had detailed assessment done at the anganwadis. The remaining 942 who failed to come for the detailed assessment were contacted at home by trained anganwadi workers. There were a total of 7070 children in the group of children above two years, and among this 5776 children had detailed assessment done at the anganwadis and 1294, who failed to come for the detailed assessment were contacted at home by trained anganwadi workers. These workers made sure that those with any suspicion of delay, deformity or disability were brought to the anganwadi for detailed assessment.

Out of 12520 children up to 5 years in this block, there were a total of 311 children with developmental delay, deviation, deformity or disability giving a prevalence of 2.5% (95% CI 2.22-2.77). Out of 4479 children up to 2 year old on whom TDSC was administered by trained personnel, 96 (2.14%) children had delay in one or more item of TDSC. In addition, 29 other children had other

**TABLE I** DETAILS OF DELAY, DEVIATIONS, DEFORMITIES AND DISABILITIES

Disability	Number
Speech and language problems	78 (29.8%)
Inadequate and unclear speech	68
Stammering	10
Orthopedic deformities	68 (25.9%)
Flat foot	24
Toe abnormalities	9
Scoliosis and trunk deformities	9
CTEV	7
Hyperflexibility	5
Congenital limb deficiency	3
Polydactyly	4
Bowling of legs	2
Gait abnormality	2
Hypoflexibility	1
Achondroplasia	1
Elevated shoulder	1
Vision and hearing problems	53 (22.2%)
Squint	23
Other visual problems	7
Ptosis	3
Nystagmus	2
Impaired hearing	10
Partial deafness	5
Congenital hearing loss	3
Cerebral palsy (CP)	32 (12.2%)
Spastic CP	24
Hypotonic CP	7
Mild CP	1
Mental retardation and related disorders	21 (8.0%)
Microcephaly	7
Down syndrome	6
Mental retardation	4
Hydrocephalus	4
Other Problems	10 (3.8%)
Tongue tie	4
Facial palsy	2
Bottom shuffling	2
Erb's palsy	1
Hypothyroidism	1

\* CTEV, Congenital talipes equino varu

### WHAT THIS STUDY ADDS?

- The prevalence of developmental delay, deviation, deformity or disability among the under-five children in one ICDS block in Kerala was 2.5%. Speech and language problems were observed to be the most common disabilities (29.8%).

deviations or disabilities identified on clinical examination. Among 942 who did not turn up for the assessment and were contacted at home by the anganwadi workers, 1 child was found to be abnormal. Hence the prevalence of developmental disabilities up to 2 years was 2.31 (95% CI 1.91-2.71). Out of the 5727 children 2-5 year olds on whom DDST was administered by trained personnel, 132 (2.36%) children had delay in one or more domains of DDST. In addition, 49 children had other deviations or disabilities identified on clinical examination. Among 1294 who did not turn up for the assessment and were contacted at home by the anganwadi workers, 4 children were found to be abnormal. Hence the prevalence of developmental disabilities in the 2–5 year old group was 2.62 (95% CI 2.25–2.99). **Table I** shows the details of delay, deviations, deformities and disabilities observed in this study.

### DISCUSSION

Adequate functional development during infancy reflects the potential of the central nervous system for normal later development. If we could detect developmental delay early, the interventions will be more effective and it will be easier to prevent setting-in of childhood disability. The observed prevalence of developmental delay among children up to 2 years in this study (2.31%) is comparable to a previous study showing 3% prevalence among less than 2 year olds in a coastal panchayat(10). The observed 2.5% prevalence of developmental delay, deviation, deformity or disability among the under-five children in one ICDS block, suggests the enormity of the problem and the huge numbers to be dealt with at the national level.

This Unicef supported survey results has had many policy implications for the state. It has been the baseline field data for an ambitious plan to include anganwadi based developmental screening and

therapy programs for children under 5 years of age, using the health and ICDS community infrastructure. The State Action Plan for the Child in Kerala, a policy document of the Government of Kerala, has included a separate chapter on “Prevention of Childhood Disability”. This could be a model for at least those states or districts where mortality and morbidity issues have been taken care of reasonably.

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