

DETECTION AND PREVENTION OF CHILDHOOD DISABILITY WITH THE HELP OF ANGANWADI WORKERS

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ABSTRACT

Objectives. To evaluate the role of Anganwadi Workers (AWW) for detection and prevention of disability in children below 6 years of age.

Design. Cross sectional and longitudinal follow up.

Setting. Ten Anganwadi Centres in ICDS Urban Project.

Methods. Trained AWWs identified disabilities and instituted preventive measures like immunization and supplementary nutrition. Simultaneous independent verification by pediatricians. Repeat survey after 6 mo of follow up.

Results. Amongst the 1545 children, AWW identified disability in 126 subjects which were verified in 118 cases by pediatricians. The disability rate was 7638 per 100,000 population. Visual, mental, orthopedic, speech and hearing disabilities rates were 4790, 2654, 583, 518 and 453 per 100,000 population, respectively. In the repeat survey, 35 of the 74 children with visual disability (mostly xerophthalmia), 4 of the 9 with orthopedic disability and 3 of the 7 with hearing disability could be managed satisfactorily.

Conclusions. AWW can help in early detection and appropriate management of incipient and preventable childhood disabilities.

In context of health experience disability can be defined as "any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for human being". In case this is not reversible, or becomes chronic it gives rise to handicap interfering with the ability to interact with the surroundings(1). Early detection of disability will be the hallmark in reducing the high incidence of disabled children(2). A number of these disorders are preventable and substantial proportion can be suitably rehabilitated(3,4). Early detection of disability though most important in preventing permanent disability cannot be left entirely on doctors alone. Therefore, the present study was undertaken to find out the role of Anganwadi workers in an Integrated Child Development Services (ICDS) project for detection and prevention of disability in children below 6 years.

Subjects and Methods

This study was conducted in an ICDS urban project, Gorakhpur in randomly selected ten anganwadi centres from October 1984 to September 1985. Anganwadi workers (AWW) were given inservice orientation and training to detect various types of disabilities in children below 6 years, four hours per

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day, for six days, at BRD Medical College, Gorakhpur. After this, they were given a pre-tested preforma for detection of disabled children. Doctors of the Department of Pediatrics visited each centre to help in survey work of AWW and provide measures to prevent handicaps. They examined all the cases including assessment of the nutritional status(5) and also confirmed the findings of AWW to check over or under-reporting of disabled children by these workers. The disabilities detected were visual, mental, orthopedic, speech and hearing. A detailed history including that of perinatal illness, drug intake, immunization and socio-economic status(6) was obtained. Partially immunized children were those who did not receive the full course of immunization, *i.e.*, 3 primary and booster doses of DPT and oral polio vaccine, and one dose of BCG. Preventive measures included immunization, supplementary nutrition, iron to anemic children, vitamin A or D in those with deficiency. Development assessment, vision testing and hearing testing was done. Development assessment was assessed in the in following six fields(7): (i) gross motor development, (ii) fine motor development (manipulation), (iii) speech, (iv) smiling and social behavior, (v) sphincter control, and (vi) chewing. The development quotient (DQ) was calculated as the ratio of the development and the chronologic age (x100). Vision testing was done as follows: (i) In children below 6 months attention of the child was sought by a lighted object, the object was then moved and response of child was noted; (ii) In children above 6 months balls of three different sizes ($1/4''$, $1/2''$ and $3/4''$) were rolled over a dark cloth

10 feet away. The examiner first attracted the baby's attention, and then observed the child's tracing capability; and (Hi) In older children color of different natural objects were asked.

Test for hearing included: (i) Response to sound in the first 2 to 3 months, *e.g.*, quietening if crying; (ii) After 3 months of age head turning in response to sound; (iii) At 6 months sound was made 18 inches away from the ear at the level with ear; (iv) At one year—behavior of the child in response to noise behind the child.

These children were followed for a period of 6 months when a repeat survey was done to find out the impact of these measures. The prevalence rate (PR) of disability was calculated by following formula:

$$\text{Prevalence rate (PR)} = \frac{\text{Number of disabled}}{\text{Estimated total population}} \times 1,00,000$$

Results

There were 1545 children including 812 (52.6%) boys and 733 (47.4%) girls, which was 15.1% of the total population. Anganwadi workers had reported disability in 126 children, but on examination by doctors only 118 cases were confirmed. The disability rate was 7637.5 per 1,00,000 in children below 6 years of age. There were 64 (54.2%) boys and 54 (45.8%) girls.

One hundred and four children (88.1%) had single impairment whereas 14 (11.9%) had two or more defects. The youngest child was 3 months and the eldest was 5Vi years of age. The disability rate was higher in children between 3-6 years of age group constituting 65.5% of total cases.

The type of disability is shown in *Table I*. Seventy five (63.6%) out of 118 children belonged to poor socio-economic status (Classes IV and V), whereas 19 (16.1%) belonged to upper socio-economic status (Classes I and II) and 24 (20.3%) were from socio-economic Class III. Seventy eight (66.1%) children were severely malnourished (Grades III and IV) whereas mild to moderate degree of protein energy malnutrition was present in 12 (18.6%) and 17 (14.4%) children, respectively. Only one child had normal nutrition. Fifty six (47.5%) children were fully immunized, 4 partially immunized and 58 (49.1%) were unimmunized.

The commonest type of visual disability was due to vitamin A deficiency in 54 children, squint in 6, ocular infections in 6, corneal ulcer in 4, corneal capacity in 3 and congenital absence of both eyes in one case. Mild, moderate and severe mental retardation were seen in 31, 7 and 3 cases, respectively. Severe mental retardation cases were associated either with cerebral palsy or with microcephaly.

Out of 9 cases with orthopedic disabilities, 4 had poliomyelitis, 2 each had cerebral palsy and arthritis and 1 had

rickets. Lalling of speech and dysarthria were seen in 3 and 2 cases, respectively, and one case each had stammering, nasal speech and mutism. Hearing disability was due to ear discharge (3 cases), impaired hearing (2 cases) and congenital deafness (2 cases).

The impact of measures in preventing handicaps were noted in the repeat survey in which 35 (47.3%) out of 74 children with visual disability, 4 (44.4%) out of 9 with orthopedic disability and 3 (42.9%) out of 7 with hearing disability could be managed satisfactorily.

Discussion

No dependable data are available about the size of disabled population in India. Different estimates are available which are due to varying definitions used by a number of workers. In 1981 the National Sample Survey undertook a nation-wide survey of disabled persons. Prevalence rate in urban areas for orthopedic hearing, speech and visual disabilities was 2440, 386, 342 and 444 per 100,000 respectively in males while it was 2060, 395, 207 and 670 per 100,000 in females(8). In the present study pre-

TABLE I—Type of Incipient or Overt Disability

Type of disability	Incipient disability (n=94)	Overt disability (n=24)	Total disabilities (n=118)	Prevalence rate (per 100,000)
Visual	67 (0.5%)	7 (9.5%)	74 (53.2%)	4789.6
Mental	31 (75.6%)	10 (24.4%)	41 (29.5%)	2653.7
Orthopedic	4 (44.4%)	5 (55.6%)	9 (6.5%)	582.5
Speech	4 (50.0%)	4 (50.0%)	8 (5.8%)	517.8
Hearing	5 (71.4%)	2 (28.6%)	7 (5.0%)	453.1

absence of disability was 7637.5 per 100,000(2,9) while at Mehrauli and Tuglakabad(10), Chandigarh(11) and Vishakhapatnam(12), it was 6610, 5370 and 15300 per 100,000. In this study maximum number of children were among socio-economic Class III and IV. Almost similar findings were reported by other workers(3,6,12). The probable reason for the high prevalence of disability in lower socio-economic group was due to illiteracy and ignorance coupled with meagre income which had prevented them to seek proper advice at the appropriate time in order to prevent permanent disability. The maximum number of disabled children were having Grades III and IV malnutrition. Malnutrition is an important factor in producing disability. A disabled child neglected by parents, neighbors and society further develops malnutrition establishing a vicious cycle(13). In the present study, immunization status of children had a definite relationship with disability. Out of all disabled children, only 47.5% children were fully immunized. Prevalence rate of disability was 876.3 per 1,00,000 immunized as against 9062.5 per 1,00,000 in unimmunized children. This was surprising because

immunization could only prevent the disability caused by poliomyelitis, and should not have much bearing on overall prevalence of disability.

In the present study visual disabilities were present in 53.2% children which was much higher than that reported previously (*Table IJ*)(3,10,12). The difference is because we also included cases of vitamin A deficiency, squint and ophthalmia neonatorum. The next common type of disability was mental retardation constituting 29.5% which is more as compared to other workers(3,10-12). Children with mild mental retardation were detected, even below 2 years by development testing. Orthopedic, speech and hearing disabilities were less common in the present study as compared to the findings of other workers(3,10-12). Measures were most effective in preventing visual disability in 47.3% children.

Our results suggest that Anganwadi workers after being given inservice orientation and training can help in early detection of incipient and preventable disabilities which can lead to permanent handicap. They would be of great help in providing preventive measures in such patients.

TABLE II—Comparison of Different Surveys of Disability (%)

Disability	Chandigarh (11)	Mehrauli & Tuglakabad (10)	Vishakhapatnam (12)	Present Study
Visual	36.9	9.0	32.0	53.2
Mental	9.2	9.0	12.0	29.5
Orthopedic	18.7	12.0	36.0	6.5
Speech		29.0	36.0	5.8
Hearing	15.4	21.0	8.0	5.0

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