Reviews/Analyses

Prevention of mental handicaps in children in primary health care*

P.M. Shah

Some 5–15% of children aged 3 to 15 years in both developing and developed countries suffer from mental handicaps. There may be as many as 10–30 million severely and about 60–80 million mildly or moderately mentally retarded children in the world. The conditions causing mental handicaps are largely preventable through primary health care measures in developing countries.

Birth asphyxia and birth trauma are the leading causes of mental handicaps in developing countries where over 1.2 million newborns die each year from moderate or severe asphyxia and an equal number survive with severe morbidity due to brain damage. The other preventable or manageable conditions are: infections such as tuberculous and pyogenic meningitides and encephalopathies associated with measles and whooping cough; severe malnutrition in infancy; hyperbilirubinaemia in the newborn; iodine deficiency; and iron deficiency anaemia in infancy and early childhood. In addition, recent demographic and socioeconomic changes and an increase in the number of working mothers tend to deprive both infants and young children of stimulation for normal development.

To improve this situation, the primary health care approach involving families and communities and instilling the spirit of self-care and self-help is indispensable. Mothers and other family members, traditional birth attendants, community health workers, as well as nurse midwives and physicians should be involved in prevention and intervention activities, for which they should be trained and given knowledge and skills about appropriate technologies such as the risk approach, home-based maternal record, partograph, mobilogram (kick count), home-risk card, icterometer, and mouth-to-mask or bag and mask resuscitation of the newborn. Most of these have been field-tested by WHO and can be used in the home, the health centre or day care centres to detect and prevent the above-mentioned conditions which can cause mental handicap.

Introduction

The true prevalence of mental handicaps in children must be much higher than the reported figures, because most surveys have dealt with only severe cases; mild cases are difficult to measure using the available psychometric tests because of doubtful reliability when applied to children. Some mental handicaps appear regularly together; this is seen in the association of neurodevelopmental abnormalities in 7–10 year-olds in the USA (Table 1) (1–3).

In Sweden 0.3% of 5–16-year-olds had severe retardation (4) and 0.4% had mild retardation (5). However, mild mental retardation in the USA was 8–10 times more common (6). Neurological and communication disorders affect 42 million Americans, including nearly 4 million children (7) or almost 10% of all school-age children (9). The cost of managing these 42 million persons is estimated at about US$ 114 000 million each year. Apart from the human tragedy, the cost in terms of economic and social loss to individuals, families and societies is enormous (7).

In the developing countries several conditions associated with poverty and the environment are responsible for mental handicaps. Reliable data on prevalence of mental handicaps in developing countries are scanty; most come from hospital or out-

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patient records or from specialized institutions in urban areas. Surveys of the general population in developed countries show that 5–15% of children aged 3 to 15 years suffer from persistent and socially handicapping mental health problems which impair normal development (8); the limited data from developing countries suggest a roughly similar rate. Severe mental retardation affects about 0.4% of the children and mild retardation is prevalent in 3% (8). An international study revealed that 0.5–1.5% of the children suffered from severe mental retardation in 10 countries including Bangladesh, India, Nepal, Pakistan and Sri Lanka (9). Extrapolation from available prevalence rates in developed and some developing countries indicates that there may be as many as 10–30 million severely mentally retarded children and between 60 and 80 million who are mild to moderately retarded in the world. These conditions are largely preventable through primary health care (PHC) measures.

The causes of mental handicap differ from country to country, and their prevention depends on the level of socioeconomic development and the available manpower and financial resources. The broad field of prevention of mental, neurological and psychosocial disorders has been described in a recent report. This paper concentrates on mental handicaps in children.

**Preventable causes**

*Birth asphyxia and birth trauma*

In developing countries birth asphyxia and birth trauma are the leading causes of brain damage and mental handicaps. More than half the number of deliveries are conducted at home, mostly by traditional birth attendants (TBA), many of whom are untrained. In a rural community of India about 7.9% of the perinatal deaths resulted from birth trauma (10). The incidence of birth asphyxia in hospital cases varied between 1.3% (11) and 6.6% (12) of the total number of births. Several surveys in developed countries estimate the prevalence of birth asphyxia between 0.4% and 5.0% of live births. Extrapolating from the prevalence of asphyxia in developed countries during the 1950s and 60s, we can assume the current prevalence of moderate and severe asphyxia in developing countries to be not less than 3% of live births (13). Over 87% of the estimated 140 million global births in 1989 took place in developing countries; based on the above estimates, about 3.7 million newborns could have suffered moderate or severe asphyxia during that year in the developing countries (14). Over 1.2 million, about 32% of the moderately and severely asphyxiated children, die every year and an equal number of those surviving develop severe morbidity as a result of brain damage (14). It is likely that these figures are underestimates. During the past 20 years a number of studies from developed countries have demonstrated that birth asphyxia is a common occurrence and that brain damage, such as cerebral palsy and/or moderate or severe mental retardation as sequelae, can vary between 3.6% and 57.1% in severely asphyxiated surviving children (6, 15–21). These figures, however, depend on the definition used for asphyxia. In one study, 17 out of 33 severely asphyxiated babies who survived were followed up for between 3 and 7 years; four of them had cerebral palsy and/or mental retardation (16). In another series, 31 infants asphyxiated at the time of birth were examined after 5–10 years and it was found that 6.4% had an abnormality (17).

The National Collaborative Perinatal Projects (NCPP) in the USA, the largest study in which about 40,000 infants were followed up for 7 years (6), and other American (1, 3) and Swedish (22, 23) studies support the hypothesis that perinatal factors, especially severe hypoxia, cause structural brain damage leading to neurological disorders that include severe mental retardation.

**Intra-uterine growth retardation and birth asphyxia.** A fetus with intra-uterine growth retardation and severe perinatal asphyxia is more likely to develop brain damage than a full-term infant (24). A malnourished fetus has limited glycogen stores and hence can develop acid-base imbalance early with

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Table 1: Prevalence of neuro-developmental handicaps in 7–10-year olds

<table>
<thead>
<tr>
<th>Abnormally</th>
<th>Prevalence rate (per 1000)</th>
<th>Associated abnormalities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerebral palsy</td>
<td>2</td>
<td>Cerebral palsy</td>
</tr>
<tr>
<td>Severe mental retardation (IQ &lt; 50)</td>
<td>4</td>
<td>Mental retardation</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>5</td>
<td>Epilepsy</td>
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</table>

* Data from references 1–3.

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asphyxia. Over 90% of low-birth-weight (intrauterine growth retarded) infants are born in developing countries, where the incidence of birth asphyxia is also very high.

**Infections**

Early childhood infectious diseases such as measles and whooping cough can cause encephalopathy and subsequent mental handicap. Tuberculous and pyogenic meningitides are not infrequent in developing countries; one third to a half of the survivors of these cases are left with neurological deficits and mental handicaps. About 0.3% of the children aged 0–5 years suffer from pyogenic meningitis every year, and 0.1% have tuberculous meningitis in the Pacific countries. More than half of the children who survive are left with neurological sequelae.¹

**Severe malnutrition**

Severe malnutrition in early infancy plays an important role in the development of the nervous system. Many studies concerning the influence of severe malnutrition in early childhood on brain growth and function have indicated that both structural and functional aspects of neural development are impaired (25). Protein–energy malnutrition (PEM) in young children represents a pressing nutritional problem in developing countries. According to community surveys 0.5–4.6% of children below six years of age suffer from PEM (26). The incidence of low birth weight in some developing countries is as high as 35–50%. Severe malnutrition in many infants and young children starts during intra-uterine life. Chronic severe malnutrition in the mothers contributes to low birth weight of their infants (27, 28). Low-birth-weight infants of severely malnourished women continue to manifest severe to moderate malnutrition during their infancy and preschool age (28).

**Iodine deficiency.** In endemic areas iodine deficiency affects the mental development of children, sometimes causing severe mental retardation. PEM greatly exaggerates the effect of severe iodine malnutrition.

**Iron deficiency.** Studies have demonstrated that iron-deficiency anaemia, even when mild, may cause delay in psychosocial development (29, 30). However, because of the inadequacies in the design of these studies, there can only be limited and cautious interpretation of these results, and it would be premature to formulate public health policy on the basis of these findings.

**Adverse social situations**

Owing to the rise in the cost of living, many mothers go to work, leaving their children at home; in nuclear families the younger children are cared for by the older ones, who themselves are of school age and do not receive enough stimulation for proper psychosocial development. The social environment in situations of poverty and in homes with illiterate mothers is far from conducive to satisfactory psychosocial development for the children; malnutrition and infections are also widely prevalent and these children are more prone to mental handicaps, unless there are sufficient privileged bonding and stimulating interactions between family members.

**Neonatal jaundice**

Severe jaundice in newborns, which can cause brain damage and mental handicaps, has been identified as a serious childhood disease in African, Pacific and Latin American countries.⁶ In the African countries the incidence is 19.7% of all newborns in hospitals⁶; in some of the Pacific countries 10% of all newborns have a serum bilirubin of ≥12 mg/100 ml. About 5% of the cases of neonatal jaundice die and an equal number of infants develop post-icteric brain damage.²

**Other causes**

Mental handicaps resulting from genetic diseases and metabolic disorders are more difficult to prevent, but their proportion is a small fraction of the overall problem in developing countries.

**Genetic and metabolic abnormalities.** By the beginning of the 1970s, obstetric practices in developed countries had improved to such a large extent that birth trauma and intra-partum asphyxia diminished considerably. Hence, in these countries the most common causes of mental handicaps are not perinatal but genetic or metabolic, birth asphyxia being secondary to these conditions. The genetic contribution to mental retardation in developed countries is 45% (31); even within a single country considerable differences in the genetic distribution of people are observed, for example between one section of the community where consanguinity is common and another in which it is rare. Other factors such as

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preterm births, chromosomal abnormalities and non-genetic congenital anomalies contribute more to brain damage than intra-partum asphyxia.

Prevention and control

Knowing the causes of mental handicaps does not solve the problem because a number of other factors are involved, which need serious consideration for prevention through primary health care. These are described below.

(1) Selection of priority conditions
The lack of decisions on priorities and the involvement of multiple causes, some of which require extensive resources for programmes of prevention and management, have led to failure in achieving the desired results.

The major causes of mental handicaps differ widely in developing and developed countries. Failure to recognize this fact has led to the selection and sometimes the adoption of inappropriate approaches, methods and technologies for programmes in developing countries. Hence, considerable care is needed to study each situation and to select appropriate measures for prevention. Models used in developed countries can, if indicated, be adapted to suit the needs of developing countries but in no case should they be adopted as they are. The measures chosen should be within the available resources, priority being given to prevention in the prenatal and natal periods of care as well as to socioeconomic and environmental factors, rather than the less common genetic and metabolic anomalies.

Sometimes factors such as low birth weight attract attention for action to prevent mental handicap. An all-out attack to reduce low birth weight is extremely difficult because in most developing countries one of the major causes of low birth weight is chronic malnutrition of future mothers which begins during their infancy and childhood. Such conditions need not be given priority for short-term programmes to prevent mental handicaps.

(2) Decisions on strategies
Strategies to combat mental handicaps and prevent their occurrence or aggravation should include the following:

- prevention of the most common primary causes;
- management of mild or moderate handicaps due to socioeconomic environmental factors;
- prevention of normal children from acquiring mild or moderate forms of handicaps;
- management of severe mental handicaps.

Depending on the available resources, decisions on the above should be taken, bearing in mind that the actions should be feasible in all parts of the country and not restricted to specific areas, institutions or clinics only.

(3) Primary health care in the home and community
The fact that mental handicaps occur in all parts of a country leads to difficulties in their identification, prevention and management. In developing countries the health and education sectors are attempting to reach all the needy children but it will take a few decades to attain this goal. At present, many children are beyond the reach of any system because of poverty, shortage of health personnel, teachers and child carers, and limited facilities for transport and communications. In addition, parents frequently cannot accompany their children to distant clinics or institutions without losing their daily earnings.

The institution-centred approach is therefore expensive and not suitable for developing countries. The primary health care approach, which involves families and communities and teaches them self-care and self-help, is indispensable for progress in the developing countries. The best person to assess a child's development is the mother who observes him or her every day. In the case of working mothers, the grandmother or an elder sister/brother may look after the child. These key persons must be involved in prevention and management activities.

As the most common causes of mental handicaps in developing countries are birth asphyxia and birth trauma, traditional birth attendants (TBAs) should be the target agents for preventive actions. In developed countries, premarital counselling on the use and abuse of alcohol, cigarettes and drugs by mothers-to-be and providing information on genetic and metabolic conditions are important at all levels (home, community, institution and clinic). School-age girls and mothers-to-be should be immunized against rubella.

(4) Appropriate approaches and technologies
For prevention, detection and management of handicaps in children, training, education and relevant technologies must be provided for mothers or their surrogates and others such as community health workers, child carers, teachers and TBAs. Owing to lack of such training, these key persons have not been actively involved in most programmes.

Development of primary health care approaches and technologies
The involvement of families and communities in their own care is fundamental to the primary health
care approach, for which a variety of technologies and approaches are being developed in maternal and child health. During the last decade, WHO has promoted research and field-tested various appropriate technologies and approaches at several centres in different countries. Many of these are important for the prevention and management of mental handicaps. Some of these technologies are currently being developed and field-tested, as described below.

Technology for the prevention of handicaps

The following field techniques have been used for identification of at-risk pregnancies and children.

(a) Home-based maternal record. This helps early identification of a pregnant woman at risk of delivering a severely asphyxiated or traumatized newborn so that timely preventive action can be taken. The record is a simplified application of the risk approach concept, which has been adapted locally for specific problems and important risk conditions. Pictures and/or colours for different risk conditions enable semi-literate or illiterate mothers, TBAs and community health workers (CHWs) to use the record, which has been field-tested at 20 centres in 14 countries and found to be very useful (32),(a).

After initial field-testing in India, Philippines and Vietnam the home-based maternal record has been introduced in the primary health care services in several areas, with eventually nationwide coverage. Guidelines for its use and adaptation are currently being prepared for publication and other materials (training modules and manuals for advocacy and education) are being developed.

(b) Partograph. The partograph is a chart which can be used by trained nurse midwives in health centres or hospitals to assess the progress of labour by recording the dilatation of the cervix, thus helping to identify cases of prolonged labour that require intervention. Since prolonged labour leads to birth trauma and birth asphyxia, this method can help to prevent mental handicaps. This method is being field-tested by WHO.

(c) Mobilograph. To get mothers to count the frequency of fetal movements and record them is another useful method for monitoring fetal distress, which has been shown to be reliable for identifying chronic fetal asphyxia and taking timely action. A simplified chart has been developed and will be field-tested for its ease of application by mothers.

(d) Field monitoring of maternal nutrition. To help identify pregnant women who may deliver low-birth-weight babies, WHO is developing a simplified chart (similar to the child’s growth chart), based on data from past longitudinal studies in several centres, thus providing internationally acceptable weight or weight/height and pregnancy weight-gain curves. These charts can be included in home-based maternal records to provide visual information to mothers, TBAs and CHWs about severe malnutrition or minimal weight gains during pregnancy which may lead to low-birth-weight infants (28, 33). The identification of at-risk mothers should stimulate corrective action by the family and community health workers with regard to an adequate diet, nutrition supplements, iron and folic acid intake, malaria prophylaxis, and advice on limiting the amount of heavy work.

(e) Card to identify home-risk. In the child development and health programmes through primary health care in Sri Lanka a card is used to monitor the home-risk of having a child in the family who is developmentally delayed and mentally handicapped. The card presents reliable criteria for nine items (including young age of the mother, alcoholism, and severe poverty) and has been found useful. Some of the contents of the card can after testing be adapted and incorporated in a child’s home-based growth and development record.

(f) Chart for monitoring the child’s psychosocial development and growth. The growth-monitoring chart, which has been widely used for three decades, is useful for stimulating and initiating actions by the family and community health workers. However, it focuses only on physical growth including nutrition

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and does not monitor the child's overall development. Recognizing the importance of psychosocial development, WHO initiated a study at eight centres in six countries (recently three more centres in three Arab countries were added) to identify culture-appropriate milestones of development. The study has also investigated various environmental factors in the community and at home which either promote or retard growth and development. Based on the findings from seven provinces in China, a child's home-based growth and development record has been developed and is currently being field-tested for ease of understanding and usefulness. Nineteen culture-appropriate milestones of development for the first 6 years of life have been incorporated in the record, 14 of which have been presented in pictorial form, with different colours to indicate high and moderate risks. These records are used by mothers, health workers, and rural doctors who have been trained to monitor the child's development and record it on the chart so that timely interventions can be made to prevent mental handicap.

(g) Identification of severe jaundice in primary health care. WHO has undertaken a multicentre testing of the icterometer, a colour-coded perspex plate, which is a non-invasive method to match the colour of the skin and/or mucosa of the newborn and detect the critical intensity of jaundice. If this proves to be reliable in making positive predictions, it will be useful to community health workers in countries where hyperbilirubinaemia, which can cause death or mental handicap, is a relatively common health problem.

Research in the primary health care management of conditions causing mental handicap

In the management of conditions causing mental handicaps, recent technological developments and approaches are encouraging.

(i) Technology for management of birth asphyxia. Scientific evidence shows that when air is blown into the respiratory tract of a newborn baby, reflexes are activated that enable the infant to seek more air. Thus positive-pressure insufflation of the lung is the most effective method of resuscitation in the severely depressed newborn. Mouth-to-mouth resuscitation has limitations because of difficulties in ensuring a tight seal and in generating effective pressure, the risk of infections, and cultural reasons. Many bags and masks that are used for resuscitation are ineffective in generating the needed pressure and volume because of their small size and the shape of the mask. Moreover, most masks do not fit well on the mouth and nose of the newborn which leads to air leaks during use. It is also difficult to maintain hygiene as the masks are spoilt by boiling. Since filters are not often used, mouth-to-mask resuscitation carries the additional risk of infection to the baby or the operator.

The opening pressure required to initiate the first breath by the normal newborn is about 50 cm of water and an effective resuscitation should be able to generate that much pressure. After a short period of training, people with different educational backgrounds, age and height are able to generate safe and effective pressures.

Recent laboratory and hospital based research shows that a face mask made of silicone rubber, connected with a tube, cotton wool filter, and a mouth-piece is effective and safe. The use of a blow-off valve as a safety device is unnecessary since a dangerously high pressure cannot be generated by the use of this system. The use of clean cotton wool can act as a filter and help to prevent infection due to organisms such as Mycobacterium tuberculosis, the AIDS virus, and Streptococcus haemolyticus. Results from training 100 TBAs in India (Haryana) in air passage clearance, use of the Ambu bag and mask, cardiac resuscitation, and care of the newborn are very promising. The TBAs learnt how to resuscitate using the bag-and-mask and saved infants who had moderate and severe asphyxia, but they found it difficult to perform cardiac resuscitation without assistance.

Following the recommendation of a WHO consultation in 1989 on modifications of the silicon rubber mask, a model of the mask was made to include a tube attached to a trap containing a disposable filter. The mask and the filter can be boiled and sterilized. However, three to four boilings can spoil the filter. The preliminary results are encouraging and the mask has been field-tested through a multi-centre WHO study in 1990. Guidelines and

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*Raina, N. & Kumar, V. Experiences of prevention and management of birth asphyxia in the community. A paper presented at CAMHADD Inter-Regional Training Workshop for Teachers on Prevention and Management of Birth Asphyxia in Developing Countries, co-sponsored by WHO, New Delhi, April 1988 (unpublished).*
modules are being prepared for the training of TBAs, CHWs and other health personnel.

(ii) Research on child development and stimulation/intervention programmes. Adequate development of skills by children depends on their receiving appropriate stimulation at the appropriate stage. The first five years of life are critical for intellectual development, which at this age is facilitated by environmental enrichment. Attachments that are formed early in life between carers and children are extremely important as they draw on maternal sensitivity, stimulation, and affection. Because young infants have considerable capabilities for processing information and initiating and influencing social interaction, early mother–child or carer–child development stimulation/intervention programmes can be established in order to minimize the development of secondary handicaps and help to prevent the aggravation of mental handicaps.

The important role of interaction between the child and family members in child development (36) was substantiated by a longitudinal study on the children and grandchildren of immigrants in Kauai island in Hawaii, USA. These children, whose fathers were unskilled or semi-skilled labourers, were born and reared in chronic poverty by their mothers who had had little formal education, and they presented with higher than average rates of prematurity and perinatal stress. However, children in the index group of the study managed to develop into competent and autonomous young adults (36). Among key factors in the care-giving environment that appeared to contribute to the resilience and stress resistance of these potentially high-risk children were the number of children in the family (<4), the spacing between the index child and the next born sibling (>2 years), the number and type of other carers available to the mother within the household, the amount of attention given to the child by the primary carer in infancy, the availability of a sibling as a carer, and the presence of an informal multigenerational network of kin and friends in adolescence. A strong bond between the infant and the primary carer in the first year of life offers a secure base for the development of self-help skills and autonomy later on. Sibling carers also appeared to be important for the development of responsible behaviour and strong, affective bonds (36). The Kauai study emphasizes the role of child carers apart from mothers—family members, cousins, friends and neighbours—who can provide stimulation. Child-to-child programmes and women's associations should also be involved in child development programmes.

The Perry Preschool project in Ypsilanti (USA) focused on 123 black children aged 3 and 4 years from families of low economic status who were at risk of failing at school and had the objective of exploring the long-term effects of participation versus non-participation in development stimulation and early childhood education (37). The results up to age 19 showed improvements in cognitive performance during early childhood and in scholastic placement and achievement during the school years, decreased incidence of teenage pregnancies, delinquency, crime and the use of welfare assistance, and an increase in high-school graduation rates and in frequency of enrolment in post-secondary programmes and employment. This study is the only one to have conducted a cost/benefit analysis of an investment in early childhood intervention. The benefits included lower educational costs because of a reduced need for special education, reduced costs associated with delinquency and crime, reduced welfare payments, and an increase in earnings till age 19 and projected life-time earnings. The analysis found that the ratios of benefits (to the individual and society) to costs were 7 to 1 for one year and 3.5 to 1 for two years of preschool education.

(iii) Involvement of families and community groups in monitoring and intervention. Parents who were provided with a standardized check list of normal development, advice on making observations, and regular information on child development were found to benefit as much as those who were taught intensive intervention approaches based on daily exercises and keeping of detailed records (38). The WHO multicentre study has field-tested the reliability of culture-appropriate milestones in child development, which have been incorporated in a growth and development chart in the form of a histogram and pictures with different colours and shadings. Mothers and community members can easily mark the child's progress in development on this chart.

Methods to assist parents in providing optimally stimulating environments for their children include home visits by trained persons who give information, support and ideas on management, using written or illustrated materials. Use of locally developed videos to provide examples is another promising approach. Recent studies (39, 40) indicate that video programmes along with teaching cards and assessment forms adapted to the culture and literacy of the recipients can be invaluable for training health and education staff and the parents of mentally handicapped children. The above-cited WHO multicentre study is investigating a variety of these methods including videos.
(iv) Experiences with national intersectoral programmes. Studies carried out in developing countries can provide lessons in this field. For example, the Integrated Child Development Services (ICDS) scheme in India has been serving approximately 45 million children under six years of age through 120,000 centres in disadvantaged areas (urban slums, tribal villages and rural areas) for 14 years and involves ministries of health and social welfare and medical colleges. There is increasing demand for the expansion of this programme, which has been evaluated as a success despite certain deficiencies and constraints. The lessons from this national experience can guide other countries in planning and operating programmes on child development and prevention of mental handicaps.10

(v) Observations on management of severe malnutrition. Impaired mental development is perhaps the most serious long-term handicap associated with severe malnutrition in early childhood. The study of combining psychosocial stimulation with treatment of severe malnutrition has conclusively shown a marked deficit in the development quotient (DQ) in the non-intervention malnourished group compared with the adequately nourished group. The latter made significant improvements in their DQs in hospital and continued to do so after discharge. By 6 months they were significantly ahead of the non-intervention malnourished group and were no longer significantly behind the adequately nourished group (41).

When, owing to socioeconomic considerations, parents were reluctant to hospitalize their severely malnourished children, these cases (kwashiorkor) have been managed successfully at home with the family's available resources (42, 43). Regressed or delayed development due to severe malnutrition can therefore be managed at home by parents who have been informed about proper feeding care and other interventions.

Needs for action in the prevention of mental handicaps

While action to prevent mental handicaps in primary health care has already been initiated, much more needs to be done collectively by governments, inter-

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national agencies, nongovernmental organizations (NGOs) and scientists. Most developing countries have yet to consider child development as a priority issue that goes beyond child survival. UNICEF has expanded the scope of its programme priorities in child survival to include child development, and WHO has been working in this direction for the past decade and has made considerable advances which have been referred to earlier. UNESCO is emphasizing integrated child development in terms of early childhood care and education which includes health, growth, development and care.

In the launching of such programmes the following areas need immediate attention:

- a commitment from the government to give priority to pregnancy and delivery care, child health, growth and development in the programme;
- multisectoral and inter-ministerial collaboration involving the ministries of health, education, social welfare and others;
- faculties of medicine, departments dealing with child development and nutrition, and NGOs should be active partners. The Integrated Child Development Services scheme in India is an example of such a programme.

Safe motherhood programmes focused on identification and elimination of risks during pregnancy, safe delivery, and advice on spacing between pregnancies must also be intensified. TBAs should be legally recognized wherever this is not the case and they should be trained properly and utilized in the health care system. Universal immunization is another measure to prevent mental handicaps that would result from infectious diseases. In the child development programme efforts must be made to adapt the approaches and technologies to local needs and resources. Parents, family members including school-age children, and community groups such as women's associations should be actively involved in implementing and monitoring the programme activities. The mass media should, through social marketing, promote optimum growth and development of children including the prevention of mental handicaps.

The role of the international agencies and NGOs in promoting research and the development of appropriate technologies, prototype training, and educational materials can be crucial in initiating and supporting programmes to prevent mental handicaps. By the end of the present decade, these programmes can be visible components of primary health care systems in all countries.
Résumé

Prévention des handicaps mentaux chez l’enfant dans le cadre des soins de santé primaires

Que ce soit dans les pays en développement ou dans les pays industrialisés, de 5 à 15% des enfants âgés de trois à quinze ans souffrent de problèmes de santé mentale persistants et socialement handicapants qui compromettent leur développement normal. Environ 0,4 à 1,5% des enfants présentent un retard mental grave, ce qui signifie que leur nombre peut être de 10 à 30 millions dans le monde, tandis que 60 à 80 millions sont légèrement ou modérément handicapés.

L’hypoxie et les traumatismes à la naissance sont les principales causes de handicap mental dans les pays en développement, où plus de 1,2 millions de nouveau-nés meurent chaque année des suites d’une hypoxie modérée à grave et où un nombre égal survivent avec de graves séquelles dues à des lésions cérébrales. Les autres causes pouvant être prévenues ou traitées sont : des infections comme les méningites tuberculeuses ou à germes pyogènes et les encéphalopathies associées à la rougeole et à la coqueluche; une malnutrition grave dans les premiers mois de la vie; un faible poids à la naissance, suivi de malnutrition grave; l’hyperbilirubinémie du nouveau-né, fréquente dans les pays d’Afrique et du Pacifique; et une carence en iode. Il est vraisemblable que l’anémie ferriprive chez le nourrisson et le jeune enfant peut provoquer des retards de développement. Les changements démographiques et socio-économiques récents et l’augmentation du nombre de mères qui travaillent tendent à priver les nourrissons et les jeunes enfants de la stimulation nécessaire à un développement normal.

Les conditions d’intervention des services de soins de santé primaires (SSP) dans la plupart des pays en développement sont liées à la période pré- et périnatale ou concernent des facteurs socio-économiques et environnementaux. Compte tenu des ressources disponibles, des décisions doivent être prises en vue de: a) prévenir les principales causes primaires de handicap; b) prendre en charge les handicaps légers à modérés résultant de facteurs socio-économiques et environnementaux; c) empêcher l’apparition de handicaps légers ou modérés chez les enfants normaux; et d) prendre en charge les enfants gravement handicapés.

Étant donné que les handicapés mentaux se rencontrent partout et que beaucoup d’enfants ne bénéficient d’aucun système de soins de santé, les SSP, qui font intervenir la famille et la communauté et favorisent l’autotraitement et l’autosuffisance, ont un rôle essentiel à jouer. Les mères de famille, les autres parents, les accoucheuses traditionnelles (AT) et les agents de santé communautaires (ASC) doivent participer aux activités de prévention et d’intervention. Ces personnes, de même que les sages-femmes et les médecins, doivent pouvoir utiliser les techniques et les moyens appropriés, par exemple: dossier maternel conservé à la maison et permettant aux mères elles-mêmes, aux AT et aux ASC de reconnaître les femmes enceintes risquant de mettre au monde un enfant de faible poids ou souffrant d’hypoxie; cartographe servant à reconnaître les cas de travail prolongé lors de l’admission à l’hôpital; mobiligramme permettant à la mère de détecter les signes de souffrance foetale en comptant les mouvements du foetus; fiche de contrôle graphique de l’état nutritionnel de la mère, facteur pouvant expliquer le faible poids de l’enfant à la naissance; carte d’évaluation des risques servant à reconnaître les foyers où l’on risque de rencontrer un enfant handicapé; fiche de croissance de l’enfant conservée à domicile et portant des repères adaptés à la culture de la communauté, pour permettre à la mère de suivre le développement de son enfant; ictéromètre, plaque de résine acrylique portant des couleurs codées pour évaluer la couleur de la peau du nouveau-né et détecter un ictère nécessairement un photothérapie ou une exsanguino-transfusion; masque et ballon d’insufflation pour la réanimation du nouveau-né. La plupart de ces techniques ont été évaluées sur le terrain par l’OMS et peuvent être appliquées à domicile ou dans les crèches par les mères et les membres de la communauté, notamment les AT et les ASC, pour reconnaître et prévenir les situations susceptibles d’être à l’origine d’un handicap mental. Leur adoption dans le cadre des soins de santé primaires devrait entraîner une réduction spectaculaire de l’incidence des handicaps mentaux et des retards de développement d’ici l’an 2000.

References

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