MALNUTRITION AND MENTAL DEVELOPMENT

Dr. Vibha Kumari
M.A, Ph.D.,
Department of Home Science,
B.R.A.Bihar University, Muzaffarpur.

Abstract : Understanding the tangled relationship of early malnutrition, brain development, and mental function has become an urgent problem in the last two or three decades. The effects of malnutrition on physical growth, reproduction lactation and work performance in experimental animals and man have been studied extensively by several workers for over half a century. Studied have also been carried out by some worker's on the effect s of malnutrition on the effects of malnutrition on the effects of malnutrition on intelligence and learning in children.

Keywords :- Reproduction, Trangled, Lactation, Malnutrition, Intelligence.

I. INTRODUCTION:-

Malnutrition is a serious condition that occurs when a person's diet does not contain enough nutrients to meet the demands of their body. This can affect growth, physical health, mood, behavior and many of the functions of the body. The effects of malnutrition on physical growth, reproduction lactation and work performance in experimental animals and man have been studied extensively by several workers for over half a century. Only within the last decade or so, studies have been carried out by some workers on the effects of malnutrition and under nutrition on the development and functioning of the central nervous system in experimental animals. Studies have also been carried out by some workers on the effects of malnutrition on intelligence and learning in children.

II. EFFECT OF MALNUTRITION ON THE DEVELOPMENT OF BRAIN IN EXPERIMENTAL ANIMALS:-

The effect of malnutrition on the development of the brain in some experimental animals has been studied by some workers. The results of studies of Dobbing and co-workers on rats are summarized below :-

The general plan of the experiments has been to restrict the growth of rat at different periods in relation to brain 'growth spurt' and of myelination after rehabilitation of the animal to adult size. More recently, experiments have been designed failure of brain development to recover completely from early under nutrition and rehabilitation on a good diet. It has been found that the periods of maximum brain growth and cell division, as well as the period of myelination is not retarded or postponed by under nutrition. These are processes which must occur at certain chronological times. If nutrition is sufficiently restricted to retard growth at these times, then the physiological processes of brain development themselves are quantitatively restricted and on subsequent restoration of an adequate diet, the brain has no capability for making good the deficit.

III. UNDERNUTRITION AND THE DEVELOPING HUMAN BRAIN :-

In the light of all these findings, It remains to consider whether developinghuman brains may be at risk, taking into account the period of the human gestation and lasts throughout the first several months of postnatal life. It is suggested that the developing brains of the following groups of human children be considered vulnerable:-

(1) Prematurely born babies, even in privileged communities:- These are deprived of good placental protection at the very time their brains are most vulnerable .

(2) Babies born small for the gestational age also in privileged communities; their rate of intra –uterine growth has been retarded at the most vunerable period for the brain.

(3) Babies whose growth rate has been retarded for any of the other less common reasons at the same time, due to inborn metabolic errors , endocrine dysfunction etc.

IV. EFFECT OF MALNUTRITION ON INTELIGENCE AND BEHAVIOUR IN CHILDREN :-

Recent studies by several groups of workers have shown that malnutrition can affect significantly the intelligence and learning capacity of children. Cobak and Najadanvic tested a group of 36 serbian children who had suffered from malnutrition in their preschool years and found about half of them scored below the accepted limit of normal intelligence. Liang and co-workers (1967) found very low intelligence quotients in malnourished Indonesian children showing signs of vitamin A deficiency as compared with control healthy children from the same locality. Pollitt and Granoff (1967) have compared the performance on the Bayley in front scales for mental and motor development of a group of previously marasmic infants all below two year of age at the time of the study , with the corresponding performance of a group of contron children of similar age who have had no remarkable medical history and whose weights, heights and head circumferences were within normal limits.

More recently, cravioto (1968) neuroitegrative development and intelligence in school children who recovered from severe proteincalorie malnutrition in early childhood .The results have indicated that (1) The experimental children attained significantly lower scores in the verbal and performance scales of intelligence tests (2) Their visual –Kinesthetic integration was significantly inferior and (3) They showed lag in development of auditory – visual –competence as compared with a control group of well nourished children of the same age group .

Average Percent Obtain for Different Abilities in the intelligence

		Number of Observations		Memory		Placeptul ability		Abstract ability		Verbal ability	
		Experi-mental	Mached-Control	Experi-mental	Mached-Control	Experi-mental	Mached-Control	Experi-mental	Mached-Control	Experi-mental	Mached-Control
8-9	F	7	15	18.48	47.50	17.42	62.56	14.30	62.20	16.08	36.60
	M	4	12	22.03	46.10	17.20	58.60	19.43	62.90	23.13	40.66
9-10	F	4	13	32.38	56.52	35.98	77.17	41.65	77.22	28.13	56.54
	M	1	2	70.60	61.76	37.50	60.94	33.30	83.40	50.00	81.20
10-11	F	3	8	37.26	65.21	38.56	83.95	46.26	83.48	50.00	73.30

V. CONCLUSION:-

It is evident from the above account that children who have recovered from serve malnutrition in early childhood , have inferior development and learning capacity as compared with normal well – nourished children of the same age group and from the same socio-economic class. It is obvious that urgent programmes should be instituted by the Governments of developing countries , for eradicating Malnutrition among weaned infants , preschool children and expectant and nursing mother.

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