

PSYCHOSOCIAL DEVELOPMENT OF URBAN CHILDREN (BELOW 2 YEARS) USING CULTURE APPROPRIATE INDICATORS OF DEVELOPMENT

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ABSTRACT

Six hundred essentially normal children 15 days-2 years were randomly assessed for their nutritional and developmental status. Measurement of the mid-upper-arm circumference using the Jellife's technique was employed for a quick nutritional survey. For developmental assessment, the WHO suggested culture appropriate psycho-social Basic Test Battery was used. Shakir's classification of the results did not reveal any malnutrition. Analysis of the data revealed 'at par' performances in Gross Motor, Hearing and Self Help skills and delays in Vision and Fine Motor, Language and Concept Skills. Social skills were particularly advanced.

Key words: *Development, Nutrition, Psychosocial Development, Urban children.*

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Identifying early developmental delays using culture appropriate technology permits timely intervention and better returns of investments made as preventive and promotive programmes. So far, the technology and tools used for developmental testing are devised in the West and their items and standards are not necessarily suitable in the social, economic and cultural context of other countries. In order to develop such tools, information pertaining to the developmental patterns in the country need to be gathered. Paucity of relevant data encouraged us to plan this study with the object of assessing psychosocial development of children below 2 years.

Material and Methods

Six hundred children aged 15 days to 2 years were studied between November 1987, to April 1988. A systemic random cross sectional sample(1) was drawn from five major locations within the Municipal Corporation limits of Jabalpur City. An average of 120 essentially normal children below 6 years were drawn per locale (area 1 x 1.5 km). Because knowledge of the exact age of the subjects is essential to ensure valid results, holding of an authentic birth certificate or its equivalent was made mandatory to qualify for inclusion in the study. Special efforts were also made to exclude developmentally 'at risk' children.

A thorough clinical examination was done to rule out any illness or abnormality. The mid-upper-arm circumference (MUAC) was measured according to Jellife's technique(2). The WHO suggested 'Basic Test Battery' and its manual(3) were utilized for developmental testing. To eliminate the unconscious bias of the examiner, the age of the child was confirmed after the developmental assessment was completed and recorded.

Familiar objects from the child's immediate environment were used for testing. A description of the objects follows:

Cubes: One inch square pieces of wood painted red and white; *Cup*: A bright plastic cup with a capacity to hold 4-5 cubes; *Slate and Pencil/Crayon and Paper*: These were used as per availability; *Books/Picture*: Class-I nursery books (Indian Editions) with pictures of animals and fruits were used for identification of objects; *Utensils/Spoons/Small Katoris*: Available in all the homes, were used to test conceptualization; *Colored Objects*: Brightly colored cloth (Saree, Frock) or plastic pegs, were used for color identification.

Since developmental changes occur faster at younger ages, the interval between age groups was specially kept at 15 days between 2 weeks to 14 mo; 20 days from 15-17 mo and 30 days from 18-24 mo. However, for demographical purposes they were grouped together at three monthly intervals. Fox Base III programme and a computer were used for statistical analysis and computation of percentiles for the achievement of skills.

Results

The sample studied was representative and reflected accurately the income and occupational characteristics of the city: professionals 14.5%, city 15.5%, managerial 5%, city 5.1%; Unskilled workers 30.3%, city 31.6%; Craftsmen 26.1%, city 25.4%; salesmen 24.1%, city 22.4%. The average annual per capita income (PCI) of the sample was Rs. 1000/- and that of the city Rs. 1650/- (1985 census). The nutritional status as judged by the MUAC was normal. The percentiles and ages of achievement of skills in the five fields of development are presented in *Tables I & II*. In the gross motor (GM) sector, item

'stands on one foot alone' was mastered 10.9 months ahead of other Indian babies(5), one year before British(6) and two year's before American babies(7). All other items were performed almost 'at par' with Indian babies(5), 1-6 mo ahead of British(6) and 1-8 mo behind American babies(7). In the Vision (V) and Fine Motor (FM) sectors, items 'regards object' and 'sustained attention' were performed 'at par' while 'grasps object' and 'picks up cube' recorded an average delay of 1-2 mo. 'Scribbling' was delayed by 6-10 mo but draws a straight line was 'at par'. Major delays were recorded in language (L) and Concept skills (C) while hearing (H) and self help (SH) skills were recorded 'at par' with Indian(5) and Western babies(6,7). Out of the 12 C skills tested, 7 skills were not achieved by any of the children. (*Table I*). Advanced behavior was observed in all the social skills (SS) especially in 'awareness of stranger' and 'gives name on request'. This was performed 6 mo ahead of Western(6-7) and 1 yr ahead of other Indian babies(5) (*Table II*).

Discussion

The sample is representative and reflects the socio-economic and occupational characteristics of the city. Valid conclusions can, therefore, be drawn from the findings of this study.

The notion that highly valued abilities are facilitated through practice or specific training(8) is well supported in this study. In the GM sector, early mastering of 'stands on one foot' was demonstrated. This can perhaps be attributed to constant practice and high motivation for the achievement of the skill. Younger children wanting to play 'hopsotch' with older siblings practised the skill enthusiastically which probably resulted in its early maturation.

TABLE I-*Ages (mo) when Given Percentage of Population Passed the Items in ,Gross Motor, Hearing Language & Concept Skill Sectors*

Gross motor skills	Percentiles			
	25	50	75	90
1. Lifts head when on stomach	3.2	4.4	4.9	6.2
2. Sits without support for 30 seconds	5.2	6.8	8.2	9.2
3. Stands alone for 5 or 6 seconds	11.0	12.8	18.2	20.2
4. Stands on one foot with help for more than 3 seconds	13.2	15.4	21.2	22.2
5. Stands on one foot alone for more than 3 seconds	15.1	20.2	23.2	*
6. Walks backwards	17.2	22.2	*	*
Hearing, Language & Concept Skills				
1. Searches for sound	0.4	1.1	1.2	1.3
2. Manipulates bell	4.8	6.2	8.1	9.2
3. Rings bell	7.2	8.2	9.2	11.0
4. Repeats a number of words	10.1	12.0	14.4	15.6
5. Says one word or approximation	10.6	12.0	15.0	16.0
6. Identifies one object	*	*	*	*
7. Uses object appropriately	*	*	*	*
8. Names one object	*	*	*	*
9. Enjoys looking at pictures	*	*	*	*
10. Points to two parts of the body	*	*	*	*
11. Says two words together	*	*	*	*
12. Names three objects	*	*	*	*

*Percentiles not achieved in the age group studied

Achievement of skills were clearly dictated by the mother's attitude. 'Walks backwards', was delayed by 8 mo(5), probab-ly because, it was discouraged by the mothers who feared that their babies might fall and burttthemselves if the skill was pursued. Similarly, even though 'scribbling' showed a delay of 6-10 mo 'draws a straight line' was achieved 'at par'. This is because the mothers encouraged their children to 'learn' to draw a straight line rather than 'scribbling', believing the latter to be a waste of

time, paper and pencil. Similar observations have been made in Guatemala(9).

Inadequate stimulation and lack of effective psychological interaction in a nonsupportive socio-cultural milieu eventuated 'below par' performances in V and PM, L and CS sectors. All the mothers though affectionate and caring were young, overworked and economically stressed. Hence, meaningful interaction with their babies became difficult(10). Most babies were unable to achieve the verbal competence of one year old

TABLE II-*Ages (mo) when Given Percentage of Population Passed the Items in Self Help, Social, Vision and Fine Motor Skills Sectors*

Items	Percentiles			
	25	50	75	90
Self help skills				
1. Feeds self	5.4	6.2	7.5	7.8
2. Drinks from cup	11.0	11.4	14.2	14.6
3. Feeds alone	13.2	14.8	15.8	16.0
4. Bladder control during day	15.4	18.0	*	*
Social Skills				
1. Smiles in response	0.9	1.1	1.6	2.0
2. Vocalizes in response	2.5	3.0	4.2	5.0
3. Awareness of a stranger	3.5	4.2	5.0	6.2
4. Cooperates in play	20.2	24.0	*	*
5. Gives name on request	22.4	*	*	*
Vision Fine Motor Skills				
1. Regards object momentarily	0.5	1.1	1.2	1.3
2. Sustained attention of object	1.2	2.0	2.5	3.0
3. Reaches for object	4.2	5.1	6.1	7.1
4. Grasps object	4.8	6.1	7.2	8.1
5. Picks up cube (or pebble)	6.2	7.0	7.9	8.8
6. Attempts intimation of scnbble	17.2	22.2	*	*
7. Draws a straight line	22.5	*	*	*
8. 3 or more cubes (pebble) In a cup	17.1	21.4	*	*

* Percentiles not achieved in the age group studied.

Western children(6,7). Probably the lack of stimulation, poor vocabulary, and communication skills; failure to recognize or appreciate the importance of acquiring verbal skills, in association with inadequate parental interaction were responsible for the gross delays(8-10). However, H skills were performed 'at par' with Western babies(6,7) and ahead of average Indian babies(5).

Lack of early environmental stimulation resulting 'functional isolation' and 'advantageous learning'(11) (*i.e.*, suppression of information not necessary for immediate

survival, *e.g.*, sound, smell sight, *etc.*) has been demonstrated in deprived animals(11). Subtle malnutrition and micro nutrient deficiencies have also been shown to affect exploratory behavior in infants(12). Although, overt malnutrition was absent inapparent malnutrition and micronutrient deficiencies cannot be entirely ruled out for, the whole sample was well below the Wolanski centiles. Perpetuation of the process by poverty and deprivation retarded the L, FM, V and C skills.

The impact of the socio-cultural milieu

on achievement of skills is further demonstrated by the 'at par' performance in the SH sector and the 'above par' performance of the SS. Parental expectations, need, presence of older siblings, lack of supervision and the tough way of upbringing probably force the child to learn to take care of himself at an earlier age(8).

The active social life of the parents apparently enhanced the socialization of their offsprings. The children studied were not afraid of strangers. They perceived the author as a friend and made social overtures to him. Even the notorious 15-18 year olds were friendly. The 'item gives name on request' was particularly advanced. The acceleration of the skill seems to be a response to parental expectation, social demands and constant encouragement(8).

The difference in the results of this study in comparison to other studies is attributable to variations in child rearing practices; the socio-cultural milieu; the method of administration of tests; the criterion of passing and failing an item; and use of culture appropriate material.

To conclude, an average child below 2 years born and bred in the city exhibits advanced development in SS and SH skills. This early maturation is perhaps an adaptation to the impoverished circumstance of his upbringing. Inadequate home stimulation is reflected in poor performance of V and FM, L and C skills.

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