

Growth Pattern of One to Three Years Old Rural Girls

Sheela Sangwan, Anju Manocha and Santosh Sangwan

*Department of Child Development, College of Home Science, CCS Haryana Agricultural University,
Hisar 125 004, Haryana, India*

KEY WORDS Anthropometry, Growth and Development. Haryana

ABSTRACT For the assessment of physical development of rural girls, a longitudinal study was started in 1992 and conducted on 110 rural children of Hisar district. The observations were recorded on five selected parameters viz. weight, height, and head, chest and arm circumferences. All the parameters were found increasing as age advances. When compared with ICMR standards, weight and height of girls were lower and head, chest and arm circumferences were slightly lower or higher than the ICMR standards (1986).

INTRODUCTION

The process of growth and development of a human being is a resultant of the interplay between heredity and environment. Both have their due role to play in moulding the human being - structurally and functionally. Today on one hand the rural children contribute 70 per cent of the child population of our country and on the other hand are facing the major difficulties of growing healthy. Various studies on nutritional status of preschool children reveal a close relationship between their nutritional status and anthropometric measurements as well as overall development. Chaudhary (1980) in her study on growth retardation and mental functions found that nutritional status of pre-school children, maternal nutritional status and SES factors significantly affect the mental performance and physical development of children. It is quite evident that well being of the child and his future are totally dependent upon the care and attention bestowed upon them before and after birth and during infancy.

METHODOLOGY

A longitudinal study was started in 1992. The sample was taken from the cluster of vil-

lages namely Rawalwas and Satrod of Hisar district of Haryana State. One hundred fifty pregnant women of last trimester were identified. After the birth of the child 60 respondents who had girl babies were selected (from birth to one year data have already been published). These children were observed at one year, 2 year and 3 year of age. Five parameters were recorded of all children with the help of appropriate tools. Weight was measured with the help of weighing scale for all age. Length of one year old was measured with the help of infantometer and at 2 year and 3 year of age, the anthropometric rod was used for measuring height. Fibre glass tape was used to measure head, chest and arm circumference of all age children.

RESULTS AND DISCUSSION

Mean and standard deviation were calculated for all the anthropometric measurements of 1-3 years old rural girls and compared with ICMR standards. The results of table 1 depict that mean weight is increased with the increase in age. When compared with the ICMR standards it was found that the mean weight of rural girls was 0.5-1 kg lower than the ICMR standards.

The analysis of growth of over 1 year with regard to the gain in weight revealed that rural females gained approximately 1.53 kg and 1.97 kg during 1-2 and 2-3 years of age, respectively. At ICMR level the mean gain was 1.8 kg and 1.6 kg, respectively. The mean gain in weight from 1-2 years was more at ICMR level but reverse trend was found at 2-3 years of age.

Height of rural girls was also observed to be increasing with the increase in age. The mean

Table 1: Mean anthropometric measurements of one to three years old rural girls

Anthropometric measurements	One year N: 24				Two years N: 35				Three years N: 51			
	Rural Hisar		ICMR		Rural Hisar		ICMR		Rural Hisar		ICMR	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Weight (kg)	7.05	1.20	7.8	1.63	8.58	1.45	9.6	1.93	10.55	1.47	11.2	1.96
Height (cm)	70.50	4.70	72.5	5.20	76.10	4.53	80.1	5.79	82.25	3.95	87.2	6.34
Head circumference (cm)	43.90	1.74	43.6	1.84	44.95	1.74	45.2	1.75	47.10	1.40	46.2	1.77
Chest circumference (cm)	42.65	2.63	42.3	3.95	45.00	2.01	45.2	3.18	47.60	2.36	47.2	3.17
Arm circumference (cm)	12.78	1.28	11.7	1.40	13.25	1.37	13.2	1.34	13.80	1.04	14.4	1.25

height gain from 1-2 years was 5.6 cm and 7.6 cm and from 2-3 years, it was 6.15 cm and 7.10 cm for the present sample and the ICMR standards, respectively.

So, weight and height of the observed sample was lower than that of the ICMR standards at all the three consecutive years, i.e. 1st year, 2nd year and 3rd year of life. This deficit may be related to undernutrition of children. Kaur et al. (1990) found that the mean anthropometric measurements of rural males and females of Hisar district were observed to be less than the well nourished Indian children at all ages.

Head, chest and arm circumference was found to be increasing with the increase in age. The increments were 1-2 cm per year. When compared with ICMR standards, head circumference was found to be slightly bigger for the observed sample at 1st and 3rd year of life. Mean gain in head circumference of females from 1-2 years was 1.05 cm (1.6 at ICMR standards) and 2.15 cm from 2-3 years (1.0 cm at ICMR standards).

Chest circumference also showed a good increase with the increase in age. Mean gain in chest circumference from 1-2 years was 2.35 cm and 2.9 cm at ICMR standards and 2.60 cm from 2-3 years for observed sample and 2.00 cm at ICMR standards. Mehta et al. (1988) observed that chest circumference was increasing as age increased and males were found having higher chest circumference than their female

counterparts.

Arm circumference was also found to be increasing with increasing age. Mean gain from 1-2 years was 0.47 cm for observed sample and 1.5 cm for ICMR standards whereas it was 0.55 cm from 2-3 years and 1.2 cm at ICMR standards. Pereira et al. (1983) indicated that there is progressive increase in the mean value for height, weight, chest circumference, head circumference and mid arm circumference with increase in age.

REFERENCES

- Chaudhary, M. : *Growth Retardation and Mental Function*. Ph. D. Thesis, Sukhadia University, Udaipur (1980).
- ICMR : Growth and physical development of Indian infants and children. Indian Council of Medical Research. *Technical Report Series* 18 : 52 (1986).
- Kaur, J., Phogat, S., Sangwan, S. and Gupta, K. : Physical development of seven to twelve months old rural children of district Hisar. *Haryana Agric. Univ. J. Res.*, 20 : 297-301 (1980).
- Khimesara A. : *Assessment of Nutritional Status and Subsequent Risk of Morbidity and Mortality in Tribal Children of 1-3 years of Age*. M.Sc. Thesis, Sukhadia University, Udaipur (1985).
- Mehta, S., Kaur, J., Gupta, K. and Sangwan, S. : Physical development of birth to six months old rural children of district Hisar. *Haryana Agric. Univ. J. Res.*, 18 : 231-235 (1988).
- Pereira, P., Mehta, S., Khare, B.B., Kuttyar, G.P., Agarwal, D.K., Tripathi, A.M. and Agarwal, K.N. : Physical growth characteristics in adolescent girls in upper socio-economic groups in Varanasi. *Ind. J. Med. Res.*, 77 : 839-844 (1983).