A STUDY

The Birth Weights of Infants

AT

Dabra Primary Health Centre, Gwalior District, M.P.

BY

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EFFICIENT planning of Public Health Services in the field of Mother and Child Health requires adequate knowledge of certain factors such as average birth weight of infants, incidence of low birth weight (formerly known as prematurity), relation between the weight of the child and parity of the mother, and incidence of vital losses. These indices reflect in no small measure the type of antenatal, and natal care provided, and of social and environmental conditions affecting the health of the mother and child before, during and after birth. To provide information on these indices, a small study was conducted in a rural area (Dabra) near Gwalior city, early in 1963. It is proposed to set out in this paper the findings pertaining to the birth weights of infants, as obtained from the study.

Description of the Area and Services

Dabra is a young fast growing town with a population of 12,875 (1951 Census), situated 28 miles south of Gwalior city. It is the headquarters of the Dabra N.E.S. Block. The prosperity of the town is due largely to the presence of the sugar factory which is responsible for a major part of the town's domestic export. A Primary Health Centre was established at Dabra in 1956 to provide integrated, preventive and curative services to the people in the Dabra Block.

Since 1958 this centre is being used as a practice field by the State Public Health Orientation Training Centre, Gwalior, for providing practical training to staff nurses, midwives, health visitors and auxiliary-nurse midwives. The orientation training in Public Health varies from 2 to 4½ months. In order, therefore, to organise a good maternity service in the area, as well as to develop the centre for purposes of teaching and research, an action type research programme was initiated early this year, in association with the Department of Social and Preventive Medicine, of the G.R. Medical College, Gwalior. This paper is the outcome of a Preliminary Study based on the records of deliveries maintained at the Centre.

The area served by the Centre is predominantly a rugged rural area with a population of comparatively low economic and educational levels.

Material

All the material reported is from the records of child birth of the Primary Health Centre at Dabra from June 1959 to January 1963. The total number of live births recorded during this period was 1,051. A study of the records pertaining to these births was made to find out the average birth weight, incidence of low birth weight, weight of the child and parity of the mother. The findings are discussed below :

1. **Average birth weight**

Birth weight is a sensitive index of the quality of maternity care and has engaged the attention of workers in Public Health for a long time. The average birth weight of 1,051 infants at Dabra, during the period under review, was found to be 2,762 grammes (6·1 lbs.). This average birth weight compares favourably with the observations of other workers elsewhere in India. In the Punjab, a similar study has been undertaken recently, and an average birth weight of 6·2 lbs. is reported by Surinder Nath (1963).

2. **Incidence of low Birth Weight**

Formerly what was known as "prematurity" is now called "low birth weight". That is babies weighing 2,500 grammes or less at birth were formerly designated as 'premature', but recently the World Health Organisation recommended that the concept of prematurity be replaced by that of 'low birth weight'. Accordingly the term 'low birth weight' is employed in this paper.

In the present series of 1,051 live births, 227 or 21·5 per cent were found to be of low birth weight. The distribution of infants according to birth weight is given in Table I.

Table I

DISTRIBUTION OF INFANTS BY BIRTH WEIGHT

Weight (Grammes)	*Number*	*Per cent*
1001—1500	18	1·7
1501—2000	22	2·0
2001—2500	187	17·8
2501—3000	554	52·7
3001—3500	233	22·2
3501—4000	36	3·4
4001—4500	—	—
5000 & over	1	0·1
Total	1051	—

It will be seen from Table I that there was a high incidence of low birth weight at Dabra, *i.e.*, 21·5 per cent. In England and Wales, the similar incidence was about 4·5 per cent (1950), and in New York city 5.6 per cent. In our own country, it was about 10 per cent in the Singur Health Centre (1954). Thus it appears that the low birth weight of babies is a Public Health Problem that should receive attention. This problem can be met immediately by organising efficient ante-natal services, and by improving maternal nutrition.

3. Weight and Parity

An attempt was made to find out the relation between birth weight of infants and the parity of the mother. On analysis of data it was found that the birth weight increased up to the 10th parity, after which there was a sharp decline. The results are shown in Table II.

Table II

BIRTH WEIGHT OF INFANTS AND PARITY OF MOTHER

Parity of Mother	*Number of infants observed*	*Average birth weight (grammes)*	*Increase or decrease over birth weight in first parity (grammes)*
1	181	2645	—
2	177	2713	+ 68
3	153	2802	+157
4	106	2830	+185
5	103	2798	+153
6	111	3096	+451
7	77	2696	+ 51
8	50	2790	+145
9	40	2750	+105
10	28	2875	+230
11	13	2634	— 11
12	5	2625	— 20

4. Age and Parity

The parity of mothers ranged from 1 to 16 : 22·3 per cent of the mothers were below the age of 20 years; about 80 per cent of mothers who attended the Centre were between 20 to 30 years. Thus the problem at Dabra, as in the other parts of the country, is one of young mothers. It could be possible that the high incidence of low birth weight in this region was related to the high incidence of young mothers. One way of solving the problem may, perhaps, lie in raising the age of marriage to at least 20 years for girls.

More studies would be needed to find the causes of low birth weight in this region, although it is well-known that such factors as maternal nutrition, toxemias of pregnancy, age of mothers and genetic factors influence the birth weight.