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Birth Weights of Ceylonese Babies—I

by

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(With two Text Figures)

THIS paper consists of preliminary observations on birth weights of Ceylonese babies.

The data were collected in Ward III (Professor's Ward) of the De Soysa Maternity Hospital over a period of one year.

The 595 weights constitute a 50 per cent sample of single babies born after the 28th week of gestation after a normal pregnancy. Pre-eclampsia, Diabetes, Anaemia and Hydramnios during pregnancy have been some reasons for excluding babies from this sample. The babies were weighed on a beam balance which was checked daily. This investigation was undertaken because very little information is available on birth weights of infants in Ceylon.

Birth Weights in Ceylon compared to those of Foreign countries

Das Gupta (1935) studied 900 Pre-natal cards of infants born in the Kalutara Health Unit area and in the Kalutara Hospital after a normal pregnancy. He found that the average Sinhalese male weighed 6½ lbs. at birth whilst the female child weighed 6 lbs. The average Muslim male and female birth weights were 6½ and 6¼ lbs. respectively. The babies were weighed on a spring balance. Das Gupta also attempted to study the effect of the age of the mother, the economic condition of the family, the order of birth, pre-natal care, the frequency rate of pregnancy, race and sex on birth weight.

Trowell and Jelliffe (1958) referring to Millis state that the average birth weight of the Sinhalese baby is 6.15 lbs. They quote from the same review these mean birth weights : South African Bantu 6.77 lbs., Singapore Chinese 6.80 lbs., South African Indian 6.15 lbs., and Singapore Indian 6.41 lbs.

Salber and Bradshaw (1951) studied the birth weights of South African infants and observed the mean birth weights to be 7.48, 6.85, 6.77 and 6.46 lbs. for European, Coloured, Bantu and Indian infants respectively. They suggested that the racial differences in weight were probably due to differences in the economic status of the parents.

McKeown and Gibson (1951) analysed the birth weight records of 22,527 single babies born after the 28th week of gestation in Birmingham in 1947. They found that the mean birth weight of a male was 7.57 lbs. and of a female 7.31 lbs. Another survey made in

eleven localities in England and Wales in 1950 (Reports on Public Health and Medical subjects : 1959) showed that the mean birth weight of a sample of 19,616 babies was 7.53 lbs. for boys and 7.21 lbs. for girls.

Results

One of the purposes of this study was to find out the birth weight of an infant born after the viable period to a normal mother. Before any definite conclusions are drawn, it is well to remember that the number of births examined was small.

Table I shows that mean birth weights of Ceylonese babies are 6.47 and 6.38 lbs. for males and females respectively. The birth weight does not appear to have increased since 1935. Since these observations, however, were confined to hospital births they may not be truly representative. It has been shown in the United Kingdom, for instance, that the mean birth weight is approximately half a pound greater for domiciliary than for hospital births (McKeown and Gibson, 1951). We have, unfortunately, no information regarding birth weights of infants born in the home in Ceylon.

Figure I shows that birth weights are not normally distributed. This confirms the findings of McKeown and Gibson (1951).

Table II shows the percentage distribution of births by gestation period. The mean gestation period was 282.13 days for males and 284.71 days for females.

Table III and *Figure* 2 show the mean birth weight of males and females according to the duration of gestation. Males are only slightly heavier than females at almost all the intervals examined. There is a steady increase in weight with each week of gestation for both sexes.

Prematurity

The incidence of prematurity (birth weight less than 5.5 lbs.) in this sample was 17.92 and 13.61 per cent for males and females respectively, (Table I).

Salber and Bradshaw (1951) observed in South Africa that the incidence of prematurity was : European 4.2 per cent, Coloured 9.6 per cent, Bantu 11.5 per cent and Indian 18.3 per cent. They explain these racial differences as being due to differences in economic status.

Douglas (1950) analysed a sample of 13,257 infants in the United Kingdom and found that 6.5 per cent of these were premature. He also observed that the incidence of premature births was lowest among the well-to-do. He, however, found a significantly low incidence only among the prosperous 9 per cent of his sample. He could show no social class differences within the remaining 91 per cent. He, therefore, concluded that there was no close relationship between poverty and prematurity.

From the data in this study, inferences and conclusions could be drawn as to what constitutes a premature baby from considerations of birth weight. Since our mean birth weight is approximately 1 lb. lower than in European countries we may be justified in accepting a lower weight for prematurity especially since the level of prematurity is arbitrarily fixed. A weight of 5 lbs. for instance would be a suitable level for Ceylonese babies as this would give us a prematurity incidence of 7.53 per cent for males and 5.70 per cent for females which is similar to that in the United Kingdom.

Further analyses of the data are being made with reference to birth rank, economic status, race, age of mother, etc. These will be published when investigations are complete.

Summary

1. A study of birth weights of infants born to normal mothers has been made.

2. The mean birth weights were 6.46 and 6.38 lbs. for males and females respectively.

3. The mean birth weights at different periods of gestation have been worked out.

4. 17.92 and 13.61 per cent of male and female infants respectively were premature considering the international standard of 5.5 lbs., which has been arrived at from the mean birth weight of $7\frac{1}{2}$ lbs. for the European baby.

5. A prematurity level of 5.0 lbs. has been suggested.

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TABLE I

Percentage Distribution by Birth Weight

Birth Weight (lb.)	*Male*	*Female*
Under 4	0.72	0.32
4.0 —	3.94	1.58
4.5 —	2.87	3.80
5.0 —	10.39	7.91
5.5 —	12.19	18.67
6.0 —	18.64	23.73
6.5 —	19.71	18.04
7.0 —	12.90	12.66
7.5 —	10.75	6.96
8.0 —	3.94	3.48
8.5 —	3.23	2.53
9.0 and over	0.72	0.32
Total	100	100
Number of Births	279	316
Mean (lb.)	6.47	6.38
Standard Deviation	1.09	0.95
S. E. of Mean	0.07	0.05

TABLE II

Percentage Distribution by Duration of Gestation

Duration of Gestation (weeks)	*Male*	*Female*
32 —	0.43	—
34 —	0.87	1.14
36 —	6.96	4.18
38 —	31.30	24.34
40 —	46.96	53.23
42 —	12.17	14.45
44 and over	1.31	2.66
Total	100	100
Number of Births	230*	263**

* The Gestation Period was not known in 49 of the 279 births

** The Gestation Period was not known in 53 of the 316 births.

TABLE III

Birth Weight Related to Duration of Gestation

	Male			*Female*		
Duration of Gestatio (Weeks)	*Number of Births*	*Mean Weight (lb.)*	*Standard Deviation*	*Number of Births*	*Mean Weight (lb.)*	*Standard Deviation*
32—	1	6.31		—	—	
34—	2	5.35	1.27	3	5.76	1.17
36—	16	5.98		11	5.87	
38—	72	6.27	0.88	64	6.13	0.92
40—	108	6.65	1.05	140	6.54	0.72
42—	28	6.90	1.27	38	6.62	0.90
44 and over	3	7.51		7	6.29	
Unknown	49	6.26	1.10	53	6.27	0.98
All Births	279	6.47	1.09	316	6.38	0.95
	S. E. of mean 0.065			S. E. of mean 0.053		

FIGURE 1

FREQUENCY DISTRIBUTION OF 279 MALE AND 316 FEMALE BIRTH WEIGHTS

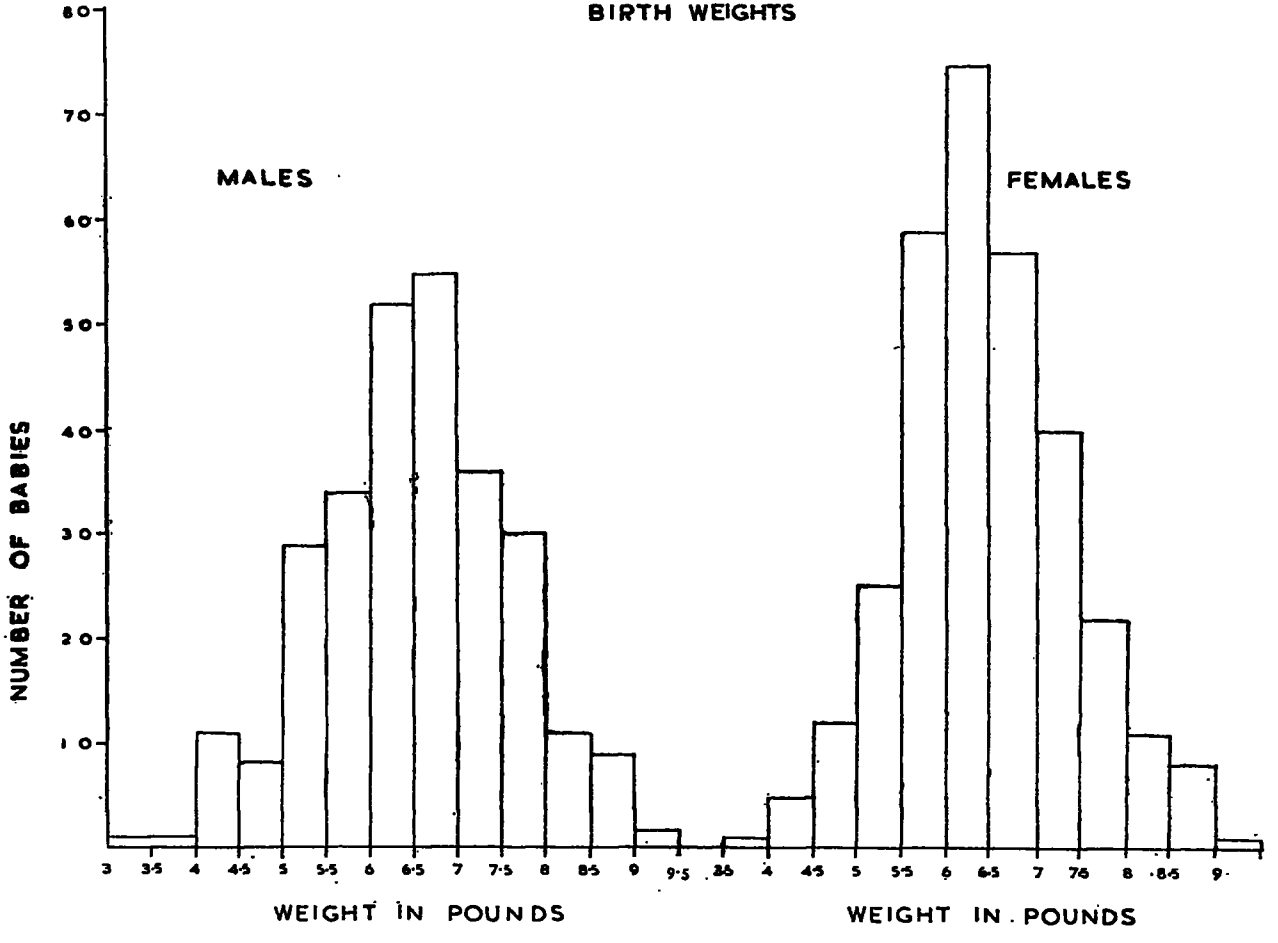
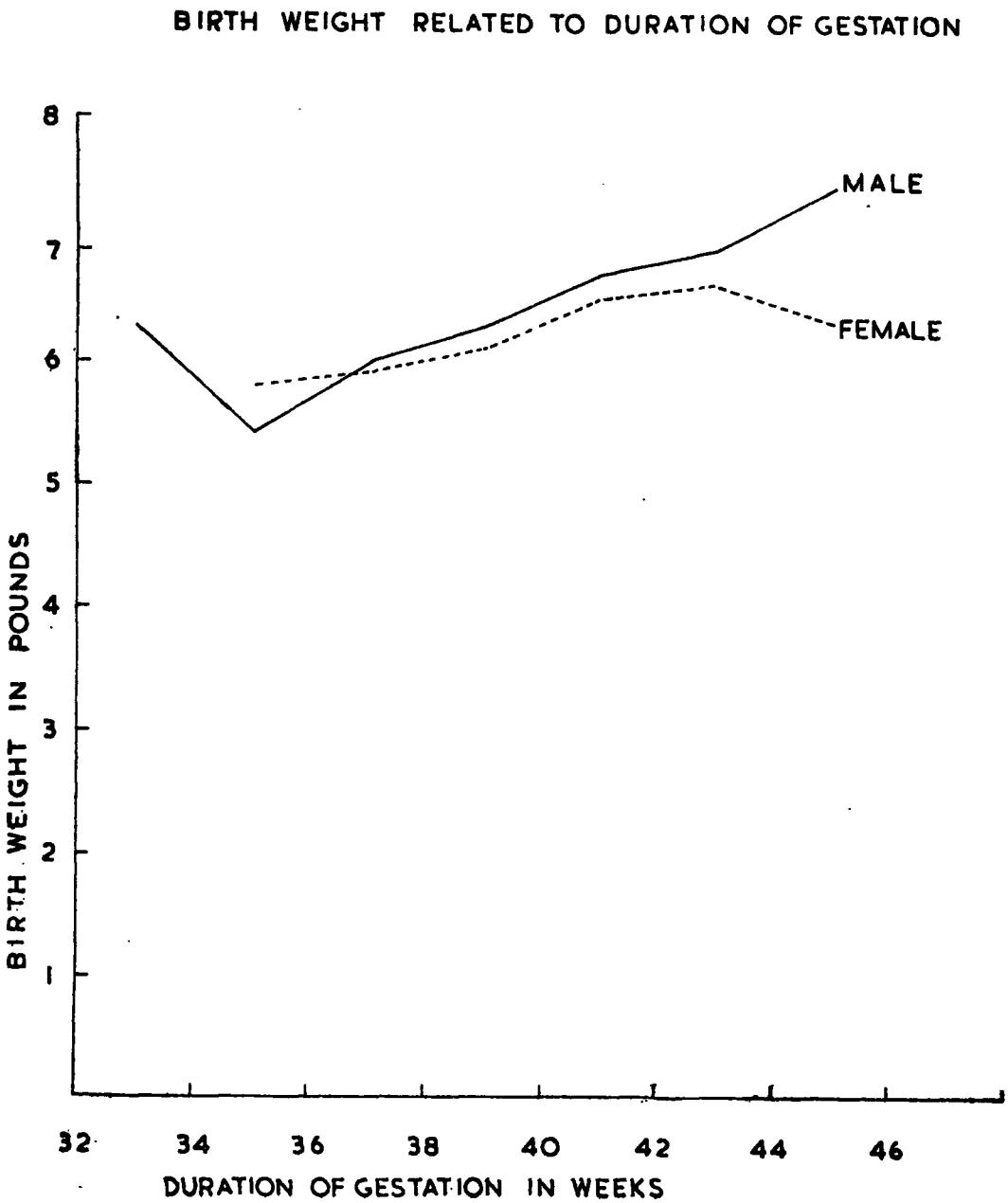


FIGURE 2


BIRTH WEIGHT RELATED TO DURATION OF GESTATION
MALE
FEMALE
BIRTH WEIGHT IN POUNDS
8
7
6
5
4
3
2
1
32
34
36
38
40
42
44
46
DURATION OF GESTATION IN WEEKS