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ORIGINAL ARTICLES

BIRTH WEIGHT AND ITS RELATIONSHIP TO GESTATION PERIOD, SEX, MATERNAL AGE, PARITY AND SOCIO-ECONOMIC STATUS

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INTRODUCTION

The birth weight is an important point for consideration in estimating the health and maturity of the newborn. It is a well-known fact that the birth weight of the infant is closely related to the period of pregnancy as also the age and parity of the mother. The weight of the infant depends on multiple factors, and among the important ones influencing the foetal growth, are the build of the parents and health and nutrition of the mother. MacLennan (1944) has pointed out that a slight increase of birth weight may tip the balance against normal confinement. Thus the birth weight of the infant opens up an important obstetrical consideration as regards its influence on perinatal and maternal morbidity and mortality. The present study deals with the infant's birth weight with a view to determine its relationship to some of the factors mentioned above.

MATERIALS AND METHODS

Our pilot investigation was based on a study of 1054 consecutive births during the last four months of 1957 in the Maternity Department of the R. G. Kar Medical College and Hospitals, Calcutta. The patients able enough to state the exact date of the last menstrual period were only taken up to study the influence of gestation period on birth weight. The gestation period was calcuated from the first day of the last menstrual period. The majority of the patients was of the lower income group and thus could be regarded as belonging to the lower standard of nutrition and poor socio-economic status. An attempt has been made to study the cases of the present series in the following order:

(1) Influence of the period of gestation on the birth weight.
(2) Influence of sex on the birth weight of infant.
(3) Influence of parity on the birth weight.
(4) Influence of age of the mother on the birth weight.
(5) Effect of socio-economic status on the birth weight.

RESULTS

1. RELATION OF BIRTH WEIGHT TO THE PERIOD OF GESTATION:

The frequency distribution of the results on birth weight in pounds obtained at different periods

TABLE 1A—SHOWING DISTRIBUTION OF THE BIRTH WEIGHT BY PERIOD OF PREGNANCY

Period of pregnancy in weeks	Birth weight of children in lb.									Total infants	Mean birth weight in lb.
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
—30 ...	6	1	2	—	—	—	—	—	—	9	2·08
30—34 ...	4	5	7	5	1	—	—	—	—	22	3·23
34—36 ...	—	2	4	12	7	1	1	—	—	27	4·65
36—38 ...	2	—	5	27	41	22	4	—	—	101	5·35
38—39 ...	3	1	4	15	71	55	9	—	—	158	5·72
39—41 ...	2	1	6	35	192	246	91	16	3	592	6·23
41—43 ...	—	—	2	7	24	41	25	6	1	106	6·46
43 and above ...	—	—	—	1	6	10	3	2	1	23	6·59
All periods ...	17	10	30	102	342	375	133	24	5	1038*	5·96

* In 16 out of 1054 cases included in this study, the gestation periods were not recorded.

of gestation are shown in Table 1A. It also presents the average birth weight classified by the period of pregnancy.

The duration of pregnancy among the cases studied ranged from 28 weeks to 44 weeks and this range was divided into 8 intervals as shown in Table 1A. Most of the births took place when the period of gestation was somewhere between 39 weeks and 41 weeks, and the model birth weight was in the range 6-7 lb. The average birth weight including all gestation periods was 5·96 lb. The average birth weights of successive gestation period groups given in Table 1A indicate a progressive increase in birth weight as the gestation period advances having a minimum of 2·06 lb. in the 30 weeks below group and a maximum of 6·59 lb. in 45 weeks above groups. The statistical significance of these results has been established by a linear regression analysis. The significance of the regression coefficient was brought out by the value of *studentised 't' which as estimated from the data was found to be 55·1520. A comparison of the observed and expected birth weights as estimated from the regression relation, viz., $Y=0{\cdot}30431X-6{\cdot}0231$ (Y and X being the mean birth weights and period of pregnancy respectively) is shown in Table 1B.

However, a detailed examination of the data in Table 1B highlights an interesting phenomenon that though there appears to be a progressive increase in the birth weights with the extension of the gestation period, the rate of increase is not always uniform throughout the range of variation of the gestation period. The birth weight increases rapidly with the gestation period upto 35 weeks after which the rate declines and eventually conforms to a linear pattern. In the next step, it was therefore, considered desirable to exclude the observed averages below the limit of 35 weeks in fitting a straight line. The equation of this newly fitted line was $Y=0{\cdot}30409X-5{\cdot}962089$ which is assumed to hold for gestation period 35 weeks and above. The rapid rate of increase of birth weight exhibited in the extremely low gestation period has been simply indicated graphically by a dotted curve deviating from the straight line fitted to the subsequent observation as shown in Fig. 1.

TABLE 1B—SHOWING COMPARISON OF THE OBSERVED AND THE EXPECTED BIRTH WEIGHTS BY GESTATION PERIOD

Mean period of pregnancy	Observed birth weight	Expected birth weight
29·0	2·06	2·80
32·0	3·23	3·71
35·0	4·65	4·63
37·0	5·35	5·24
38·5	5·72	5·69
40·0	6·23	6·15
42·0	6·72	6·78
43·0	7·17	7·06

* where $t=\frac{(b-\beta)\,S_x\sqrt{n-2}}{(S_y^2-b^2S_x^2)^{\frac{1}{2}}}$

b=observed regression coefficient,
β=theoretical regression coefficient assumed to be zero. S_x, S_y being standard deviations of x, y respectively. x, y being measured from their means respectively.

II. RELATION OF BIRTH WEIGHT TO SEX OF INFANTS BY GESTATION PERIOD:

A further analysis was carried out by dividing the cases into two groups according to the sex of infants to find out their relationship with birth weight and gestation period. A comparison of the

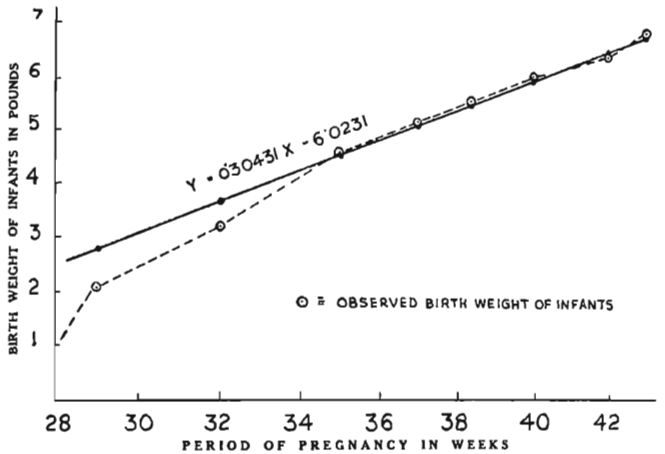

FIG. 1

pattern of variation between the birth weights of male and female babies each by gestation period class is presented in Table 2.

TABLE 2—SHOWING A COMPARISON OF THE MEAN BIRTH WEIGHTS OF MALE AND FEMALE BABIES BY PERIODS OF PREGNANCY

Period of pregnancy (in weeks)	Mean birth weights of babies		
	Males	Females	Total
(1)	(2)	(3)	(4)
	(5)	(4)	(9)
—30	2·00	2·25	2·06
	(12)	(10)	(22)
30—34	3·05	3·50	3·25
	(16)	(11)	(27)
34—36	4·57	4·77	4·65
	(51)	(50)	(101)
36—38	5·35	5·36	5·35
	(83)	(75)	(158)
38—39	5·74	5·70	5·72
	(313)	(279)	(592)
39—41	6·30	6·19	6·23
	(48)	(58)	(106)
41—43	6·37	6·57	6·46
	(10)	(13)	(23)
43—above	6·78	6·47	6·59
Total	6·01 (538)	5·91 (500)	5·96 (1038)

Figures in parentheses denote the sample population corresponding to each individual class.

The mean birth weight of male babies was 6·01 lb. and that of females was 5·91 lb. The average birth weights of male and female babies in successive gestation periods have been graphically represented in Fig. 2.

It appears from the curves shown in Fig. 2 that though for the lower gestation periods male infants are slightly handicapped in respect of birth weights than that of female infants, in corresponding periods of gestation, they seem to gain more weight than their female counterparts when the gestation period exceeds the level of 38 weeks. Since the number of observations in each gestation period class was not adequate to draw any reliable conclusion about the variation between the sexes, no statistical test has, however, been carried out.

III. INFLUENCE OF PARITY ON BIRTH WEIGHT:

An analysis of birth weight was carried out by classifying the terminations according to parity and the results of the analysis are shown in Table 3.

The cases were distributed into 10 parity groups and the highest parity noted in this series was a case of twelfth gravida. Most of the cases belonged to primipara group so far as the individual parity was concerned. The average birth weights varied between 5·67 lb. for the first parity and 6·38 lb. for the 8th parity. Though there appears

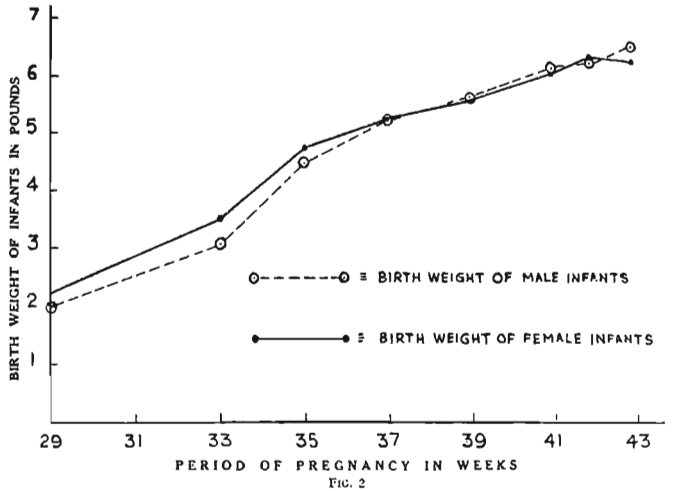

FIG. 2

TABLE 3—SHOWING DISTRIBUTION OF BIRTH WEIGHT BY PARITY

Order of the parity	Birth weights of babies in lb.									Total No. of infants	Average birth weight
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1 ...	3	3	10	45	107	89	29	2	—	288	5·67
2 ...	8	1	4	13	61	64	27	4	1	183	5·93
3 ...	2	2	4	13	40	65	10	1	—	143	5·95
4 ...	—	—	—	6	42	59	16	5	1	129	6·31
5 ...	1	1	7	9	39	43	20	3	1	124	6·03
6 ...	1	1	2	5	22	17	12	5	—	65	6·12
7 ...	—	—	—	6	14	14	4	2	—	40	6·05
8 ...	1	—	1	1	6	14	6	2	1	32	6·36
9 ...	1	1	—	5	8	15	2	—	—	32	5·72
10 and above ...	—	—	4	4	6	17	7	—	—	38	6·00
All parities ...	17	9	32	107	345	377	139	24	4	1054	

to be a tendency for the average birth weight to increase systematically with parity upto the fourth order, the pattern of variation among higher parity is not systematic.

IV. BIRTH WEIGHT AND MATERNAL AGE:

A similar analysis was carried out to demonstrate the relationship of the age of the mother at confinement with birth weight. The results of the analysis are shown in Table 4.

The cases were classified under seven age groups. The minimum age considered in this series was 14 years and the maximum age was 44 years. The maximum number of patients was in the 25-30 years age group and the minimum in the 40 years and above age group. The minimum average birth weight of 5·50 lb. was

noticed in 14-18 years age group and the maximum average weight of 6·23 lb. was observed in 21-25 years age group. Table 4 further reveals that upto the age of 25 years, there appears to be a tendency for the birth weight to increase systematically with age. At higher ages the relationship is somewhat reversed, viz., there is a tendency for the birth weight to diminish with advancing age.

v. RELATION OF BIRTH WEIGHT TO AGE OF THE MOTHER (PRIMIGRAVIDA):

An analysis of the birth weight by age at confinement carried out separately for each gravida could have clearly brought out the relationship of each of the two factors, viz., gravida and age with birth weights. But when only specific gravidae are considered, the range of variation of age at confinement gets automatically restricted. Further, the number of cases belonging to advanced parities was inadequate for a detailed analysis of this type. In view of these facts, the scope of the analysis was limited to two groups only, (a) primigravidae cases, and (b) second and third gravidae combined. The results of primigravidae cases are shown in Table 5.

The minimum age of the patients considered in this group was 14 years and the maximum was

TABLE 4—SHOWING DISTRIBUTION OF BIRTH WEIGHT BY AGE OF MOTHERS AT CONFINEMENT

Age of the mother	Birth weights of babies in lb.									Total No. of infants	Average birth weight
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
14—18 ...	2	3	2	13	35	21	5	1	—	82	5·50
18—21 ...	4	3	9	28	87	60	16	—	—	207	5·60
21—25 ...	3	—	4	16	72	104	49	4	2	254	6·23
25—30 ...	3	3	9	17	87	107	34	10	3	273	6·09
30—35 ...	4	—	3	18	50	56	20	9	—	160	6·02
35—40 ...	1	1	1	6	15	23	10	—	—	57	5·99
40 & above ...	—	—	2	5	—	8	1	—	—	16	5·56
All ages	17	10	30	103	346	379	135	24	5	1049*	

* In 5 out of 1054 cases the age returns were not complete.

TABLE 5—SHOWING DISTRIBUTION OF BIRTH WEIGHT BY AGE OF THE MOTHER AT CONFINEMENT (PRIMIGRAVIDAE ONLY CONSIDERED)

Age of the women	Birth weight of babies in lb.									Total infants	Average birth weight
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
14—18 ...	1	3	3	16	36	16	4	1	—	80	5·40
18—21 ...	1	1	6	15	42	31	16	—	—	112	5·76
21—25 ...	1	—	1	10	18	10	9	1	—	50	5·89
25—30 ...	—	—	—	1	9	9	1	—	—	20	6·00
30 & above ...	—	—	—	2	2	3	—	—	—	7	5·64
All ages ...	3	4	10	44	107	69	30	2	—	269	

TABLE 6—SHOWING DISTRIBUTION OF BIRTH WEIGHT BY AGE OF THE MOTHER AT CONFINEMENT (2ND AND 3RD GRAVIDAE ONLY CONSIDERED)

Age of the mother	Birth weight of babies in lb.									Total	Mean birth weight
	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
14—21 ...	3	2	3	11	39	31	5	1	—	95	5·59
21—25 ...	3	—	3	4	35	61	27	1	—	134	6·22
25—30 ...	2	—	2	7	20	32	6	2	—	71	5·94
30 & above ...	2	—	2	4	8	5	5	1	1	28	5·71
Total ...	10	2	10	26	102	129	43	5	1	328	

37 years. All the patients have been classified under five age groups. Majority of the patients belonged to 18-21 years age group. The minimum average birth weight was 5·40 lb. which was noticed in 14-18 years age group and the maximum mean weight was 6·00 lb. observed in the 25-30 years age group. The pattern of variation of birth weights with respect to age among primiparae cases shows a systematic tendency for the birth weights to gain upto the age of 30 years. Subsequently the birth weights have recorded a fall though no definite conclusion could be stated in view of the inadequacy of the number of observations in the age group 30 and above.

The results of the second and third gravidae (combined) cases are presented in Table 6.

As regards the variation of birth weights among the second and third para cases, the relationship with the age of the mother shows a systematic increase upto the age of 25 years and thereafter a gradual but a consistent decrease with advancing age.

In Table 7A, the combined picture of the effect of gravida and age simultaneously on birth weight is presented.

TABLE 7A—SHOWING DISTRIBUTION OF MEAN BIRTH WEIGHTS BY AGE AND PARITY OF THE MOTHER

Order of the gravida	Age of women 14-21	21-25	25-30	Total No. of term	Unweighted mean birth weight
1	5·61 (192)	5·89 (49)	6·00 (20)	261	5·83
2-3	5·59 (95)	6·22 (134)	5·94 (71)	300	5·92
Total	5·60 (287)	6·13 (183)	5·95 (91)	561	

Figures in parentheses are sample population for each individual sub-class.

It appears from the results shown in Table 7A that though there is a distinct pattern of variations of birth weights with the advancing age of the mother, the effect of parity on birth weight seems to be negligible when the analysis is restricted to the first three parae only. An analysis of variance of birth weights with respect to these two factors has been carried out and the results are shown in Table 7B.

The result of the test reveals that age affects birth weights significantly whereas the effect of gravida is practically negligible. It further shows that the pattern of variation of birth weights with respect to age is more or less same for different gravida.

TABLE 7B—SHOWING ANALYSIS OF VARIANCE OF BIRTH WEIGHT WITH RESPECT TO GRAVIDA AND AGE OF MOTHERS AT CONFINEMENT

Source of variation	Degrees of freedom	Sum of squares	Mean squares	Variance ratio 'F'	Critical values of 'F' at 5% & 1% level
(1)	(2)	(3)	(4)	(5)	(6)
Gravida	1	0·6830	0·3415	0·32388	2·54 6·37
Age	2	18·3268	9·1634	8·69062	2·99 4·60
Interaction	2	3·1323	1·5661	1·48530	3·84 6·64
Error	555	585·1913	1·0544		

N.B.—Special adjustments for the variation in the number of observations over different cells in Table 7A have been made after Yates (1934) in the analysis of variance shown in Table 7B.

VI. RELATION OF BIRTH WEIGHT TO SOCIO-ECONOMIC STATUS :

A more detailed analysis of the relationship between gestation period and the birth weight has been carried out by splitting the patients into two groups according to socio-economic status, viz., (i) birth weights of babies pertaining to mothers delivered in non-paying or general wards, and (ii) birth weights of babies who were born in paying wards or cabins. The object of this stratification according to two economic levels was essentially two-fold. Firstly, it was desirable to observe the changing pattern of birth weights of infants belonging to any of the two economic groups separately with the extension of the gestation period. Secondly, it was necessary to analyse whether there are any marked variations in the

TABLE 8—SHOWING COMPARISON BETWEEN THE MEAN BIRTH WEIGHTS OF PAYING AND NONPAYING GROUPS, BY VARIOUS PERIODS OF PREGNANCY

Period of pregnancy in weeks	Mean birth weight in lb. Paying	Nonpaying	Mean period of pregnancy
(1)	(2)	(3)	(4)
—34 ...	4·50 (1)	2·83 (30)	31·0
34—36 ...	4·50 (1)	4·65 (26)	35·0
36—38 ...	4·56 (18)	5·31 (83)	37·0
38—39 ...	5·80 (20)	5·71 (138)	38·5
39—41 ...	6·48 (96)	6·18 (496)	40·0
41—43 ...	7·09 (17)	6·34 (89)	42·0
43 above ...	7·36 (7)	6·25 (16)	43·0
Total ...	6·28 (160)	5·85 (878)	

Figures in parentheses are sample populations

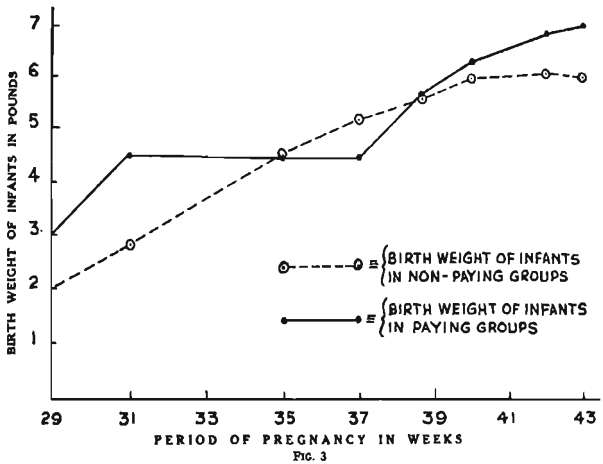

FIG. 3

birth weights of babies due to the difference in the socio-economic level of mothers. The result is summarised in Table 8.

The analysis of birth weights by gestation periods separately for the two economic groups considered above reveals more or less the same pattern of relationship as has been observed in Table 1B. The average birth weights over all gestation periods were 6·38 lb. and 5·85 lb. for the paying and non-paying groups respectively. In general, it was noticed that the birth weights of babies pertaining to mothers in the paying group were consistently higher than their counterparts for all periods of pregnancy. It was further observed that the significant difference in the overall mean birth weights of two economic groups was due to the fact that a larger proportion of mothers in the non-paying wards had extremely low gestation period which had contributed in no small measure to the reduction of the average birth weights of their babies to a significant extent. The result is also graphically represented in Fig. 3.

DISCUSSION

It is an accepted fact that the duration of pregnancy greatly influences the birth weight of infants. So the determination of the duration of pregnancy is a very important consideration in the study of birth weight of infants. The problem of the exact duration of human pregnancy has exercised the minds of obstetricians for generations and we are still not in a position of being able to give a complete answer. This is due to a large number of variable factors. There is not even a single universally accepted definition. The usual method of calculation is based upon the date of the last menstrual period. According to simple Naegele's rule, which is almost universally employed, seven days are added to the first day of the last menstrual period and nine months added in order to arrive at the expected date of delivery. This standard procedure was followed in the present study in the calculation of the gestation period, as in the present state of our knowledge, we cannot get nearer to the true date of expected delivery than that given by the application of Naegele's rule. The present study revealed that majority of the patients delivered sometime between 39 and 41 weeks of gestation. Tampan and Sundaram (1956) found that the maximum number of deliveries occurred between 271* and 276 days of gestation which showed a mean difference of 6·5 days of 280 days.

Karn and Penrose (1951) made an extensive study on the subject of foetal weight gain. A

graph drawn from the statistical analysis of more than 13,000 births, showed some remarkable characteristics. The growth in weight between 36 weeks and 42 weeks was definitely linear denoting a steady and even gain ; but a slowing down to almost nil was noticed after 42 weeks. Tampan and Sundaram (1956) showed that there was a linear weight increment upto 286 days of gestation for the whole group irrespective of parity. Our study also indicates a progressive increase in birth weight as the gestation period advances. The statistical significance of these results has been established by a linear regression analysis. A detailed analysis produces an interesting phenomenon that though there appears to be a progressive increase in birth weights with extension of the gestation period, the rate of increase is not always uniform throughout the range of variation of the gestation period. The birth weight increases rapidly with the gestation period upto 35 weeks after which the rate declines and eventually conforms to a linear pattern.

A statement is sometimes made that labour is more difficult in the same mother when a male infant is born and that a female infant stands the trauma of labour better than a male infant, weight for weight. Tilak (1956) mentioned that the average weight of a male infant at birth in his survey was 5 lb. 14·9 oz. and of a female infant was 5 lb. 9·8 oz. Thus a female infant was on an average less in weight by 5·1 oz. at birth. Tampan and Sundaram (1956) found that in the group of primiparae the maximum number of female infants were born in 276 days of gestation and male infants in 271 days of gestation. The average birth weight of female infants was 6·49 lb. and of male infants 6·54 lb. and thus the average birth weight of male infants was slightly more than the average birth weight of female infants, which being only 0·05 lb. was not significant. Bhonsale (1956) noticed no appreciable difference in weight in male and female infants in 6 and 7 lb. groups. In the total of 700 infants the male infants exceeded in weight that of the female infants by 124. The maximum number of births irrespective of sex occurred in 39-41 weeks gestation period group of the present series. The mean birth weight of male infants was 6·01 lb. and that of female infants was 5·91 lb. From the present analysis it is noticed that though for the lower gestation periods male infants are slightly handicapped in respect of birth weights than that of the corresponding averages of female infants, they seem to gain more weight than the female counterparts when the gestation period exceeds the level of 38 weeks. A more or less similar observation has been made by Karn and Penrose (1951). Since the number of observations in each gestation period class in our study was not adequate to draw any reliable conclusion about the variation between the sexes, no statistical test has however been carried out.

It is a well-known fact that babies tend to get larger with successive pregnancies. This is a very important fact in connection with grand multiparae as larger babies may consequently give rise to cephalopelvic disproportion for the first time (Donald, 1955). Moir (1956) is of opinion that there is a tendency for the weight of the baby to increase with each pregnancy upto the sixth. Sen (1953) shows that birth weight decreases with increase in parity at any given age. According to Karn and Penrose (1952), for high parities (8 and more) the mean weight of babies was almost 1 lb. more than the mean of the first born children. Tampan and Sundaram (1956) observed no appreciable difference in the weights of babies upto parity IV ; but there was a sharp rise in weights of children after parity V. The mean weight of infants with 276 days of gestation period in higher parity groups (5 and over) in their series was 0·8 lb. more than the mean weight of children in primipara group. The present study also confirms the findings that the infants born in higher parity groups have a general tendency to be heavier. The average birth weight was minimum, i.e., 5·67 lb. in parity I group and was maximum of 6·36 lb. in parity VIII group. This was also noticed during the present investigation. There was a tendency for the average birth weight to increase systematically with parity upto the fourth order, but the pattern of variation among higher parities was not systematic.

It has been observed that the birth weight increases with the increase of age of the mother. Sen (1953) found a relation between the birth weight and age and parity of the mother and he concluded that the effect of maternal age on birth weight was small, but birth weight decreased with increase in parity at any given age. While studying a group of primiparae only, Tampan and Sundaram (1956) noticed that the birth weight did not show great variation upto the age of 27 years, but the same presented a gradual increase in the age group of 28 years and over. They found that infants in the higher age group were 0·43 lb. heavier than infants in the younger age group. They thought that this increase in birth weight was responsible for the greater incidence of instrumental deliveries in elderly primigravidae. The present study reveals that the minimum average birth weight is 5·50 lb. which is seen in 14-18 years age group and the maximum mean weight of 6·23 lb. is seen in 21-25 years age group. There

appears to be a tendency for the birth weight to increase systematically with age upto 25 years, but it tends to diminish with advancing age thereafter. There is also a systematic tendency for the birth weights to gain upto the age of 30 years in respect of age among primiparae cases only. But subsequently the birth weights record a fall though no definite conclusion can be drawn in view of the fact that the number of observations in the age group 30 and above is inadequate. Our investigation also points out that though there is a distinct pattern of variations of birth weights with advancing age of the mother, the effect of parity on birth weights seems to be negligible when the analysis is restricted to the first three parities only. Further tests reveal that age affects birth weights significantly whereas the effect of gravida is practically negligible, and the pattern of variation of birth weights with respect to age is more or less the same for different parities.

The influence of socio-economic status on the birth weight of infants is a long recognised fact. The growth of an intra-uterine foetus largely depends on the mother's physique, health, habits and diet, all of which partly or wholly depend on the income and standard of living. Burk (1958) quoted by Bhonsale (1956) found close relationship between the diet and the birth weight. The importance of dietary and economic influences on prematurity and birth weight was also stressed by Edwards (1946). Sufficient nutrition prevents premature termination of pregnancy and thereby influences the birth weight. This had been corroborated by the study of Population Investigation Committee formed under the auspices of the Royal College of Obstetricians and Gynaecologists (1948). Douglas (1950) stated that a significantly low incidence of premature births was found among the most prosperous of the social classes. Sen (1953) found that the percentage of mothers receiving antenatal supervision was highest in the upper income group and he considered this to be a contributory factor towards higher birth weight as met with in them. He concluded that the birth weight was greatly influenced by the nutritional status, particularly, during the last three months of pregnancy. Bhonsale (1956) studied the effect of diet supplements on birth weight, length, etc. She observed that the weight of maximum number of infants of experimental group was 7 lb. as compared to 6 lb. in the control group. In the present study, we did split our patients into two broad groups according to socio-economic status with a view to find out the relationship of the latter with the birth weight. In general, it was noticed that the birth weights of upper income group were consistently higher than those of lower income group for all periods of pregnancy. The significant difference in the over-all mean of birth weights of the two economic groups is due to the fact that a high percentage of mothers of lower income group had experienced premature termination of pregnancy. The importance of routine and regular antenatal supervision of prospective mothers cannot be over-emphasised. During antenatal supervision, a pregnant woman becomes conscious of the importance of nutrition and this is the beneficial effect of this care on birth weight of infants

Summary

Birth weight increases systematically with advancing gestation period, but more rapidly in the initial phase, i.e., below 35 weeks.

For earlier gestation periods the birth weights of female babies are slightly higher than that of their male counterparts, whereas the reverse conclusion is true in cases with gestation period of 38 weeks or more.

The parity when considered alone has no appreciable effect on birth weight.

The birth weight systematically increases upto 25-30 years age group, and thereafter diminishes consistently. The increase in birth weight with parities observed among the first 3 para may be due to the coincidence of higher parities with higher ages.

The lower economic group of patients has recorded a lower over-all average birth weight, mainly for the reason that the larger proportion of births to this group was premature. Besides gestation periods, there appear to be other factors which bring down the mean birth weight among lower economic group patients. This is brought out by comparisons of the average birth weights of the upper economic group in similar gestation period class.

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