

MATERNAL PARAMETERS ASSOCIATED WITH BIRTH WEIGHT AND PLACENTAL WEIGHT IN SRI LANKAN MOTHERS

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It is difficult to define nutritional parameters in pregnancy to assess foetal and placental growth. Nutrition affects the mother, baby and placenta in different ways. Furthermore, there are other factors that affect the birth weight and placental weight independent of nutrition. In this paper various maternal parameters that determine the birth weight and placental weight were analyzed.

Parity ($r = 0.121$ $p < 0.035$), age of the mother ($r = 0.133$ $p < 0.021$), height ($r = 0.237$ $p < 0.000$), weight in early pregnancy ($r = 0.254$ $p < 0.000$), weight in mid pregnancy ($r = 0.254$ $p < 0.000$), weight at the time of delivery ($r = 0.236$ $p < 0.000$) and weight gain in pregnancy ($r = 0.206$ $p < 0.002$) significantly correlated with *birth weight*. Systolic BP ($r = -0.162$ $p < 0.005$) and diastolic BP ($r = -0.119$ $p < 0.039$) negatively correlated with *birth weight*. However, maternal haemoglobin ($r = -0.038$ $p > 0.720$) did not correlate with *birth weight*. Parity ($r = 0.118$ $p < 0.040$), weight in early pregnancy ($r = 0.238$ $p < 0.000$), weight in mid pregnancy ($r = 0.220$ $p < 0.001$) and weight at the time of delivery ($r = 0.267$ $p < 0.000$) significantly correlated with *placental weight*. Whereas, age of the mother ($r = 0.081$ $p > 0.160$), height ($r = 0.092$ $p > 0.110$), and weight gain in pregnancy ($r = 0.040$ $p > 0.548$) diastolic BP ($r = -0.081$ $p > 0.161$) and maternal haemoglobin ($r = -0.158$ $p > 0.131$) did not correlate with *placental weight*. Only, systolic BP ($r = -0.121$ $p < 0.036$) negatively correlated with *placental weight*. Placental weight significantly correlated with birth weight ($r = 0.662$ $p < 0.000$).

Maternal age, parity, maternal height, weights in different stages of pregnancy, weight gain in pregnancy and placental weight determine birth weight in our infants. However, only parity and weights in different stages of pregnancy and foetal weight determine placental weight.

The relationship of maternal height to birth weight is probably genetic in origin and maternal genetic features seem not to affect placental weight. Even though, the overall weight gain in pregnancy has no relationship with placental weight, maternal nutrition does have a relationship with placental weight as shown by its relationship with maternal weights in different stages of pregnancy.

In conclusion maternal weight irrespective of the period of gestation had a close relationship with both, birth weight and placental weight. However, to eliminate the effect of maternal height on birth weight and to highlight the importance of nutrition in pregnancy, additional parameters are necessary since there is no single parameter that defines the overall nutrition of the mother. Maternal BMI could be an additional parameter that needs further evaluation as an index of placental and foetal nutrition in Sri-Lankan context.