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Research Article

**A STUDY ON THE EFFECTS ON MOTHER HEALTH
AFFECTING NEWBORN PARAMETERS**¹Hamna Arif, ²Hira Asim, ³Huzaiifa¹King Edward Medical University²WMO at RHC Haveli Bahadar Shah, Jhang³Lahore Medical and Dental College**Abstract:**

Objective: Body mass index before pregnancy is very important marker of the nourishment status. It can be one of the various variables having influence on the development of unborn baby in the body of pregnant female. The objective of this research work is to conclude the association between the categories of various factors before pregnancy as BMI, parity and new baby ponderal indexes (PI), weight at the time of birth in our communities.

Methodology: For the evaluation of operational importance of body mass index before the pregnancy, the information from two hundred and sixty-four residents. The information of age, weight before pregnancy, height, number of the children born by female gathered in an interview. We assessed the association between number of children, age of the participants, weight before pregnancy and body mass index and new born child aspects as weight of new born & PI.

Results: Mean weight at the birth was 3.340 ± 400 kilograms, height at the time of birth was 50.53 ± 1.66 centimetres, of PIs was 25.54 ± 2.06 . The average body mass index of mothers was 23.06 ± 3.64 and of parity it was about was 2.14 ± 1.17 .

Conclusions: When body mass index classes compared with weight at birth and number of the children, it was identified that it has a close relationship. Statistical disparity was not identified between body mass index of before pregnancy maternal and PI of the new born. The nourishment status is to be rectified before pregnancy to decrease the possibility of low weight of the new born baby.

Key Words: body mass, kilograms, centimetres, maternal, pregnancy, new born, nourishment.

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INTRODUCTION:

Females are very open to the factors of various nutritional practices which participate in the weight of women and their BMI. Before pregnancy BMI is very vital identifier of nutritional condition among various variables which has an influence on the development of the unborn baby [1-4]. A variety of anthropometric factors are in use from many years to know the occurrence of low nutrition in babies. These factors include height of the child according to age, weight specific for an age & PI. These factors contribute in the evaluation of the total nutritional condition.

The PI is very much similar to the BMI but it is utilized for the assessment of the development of new born child in general. These values help us to know the ideal capacities of new born [5, 6]. PI is an assessment method of knowing about the growth of unborn child in the uterine, relation between the nutrition condition of mother and unborn baby. This could be feasible with the evaluation of the body mass index of mother and PI of the new born. The main aim of this research work was to determine the association between different before pregnancy body mass index categories, parity and PIs & weight at the time of birth of the new born child in our communities.

METHODOLOGY:

For the evaluation of the operational importance of the body mass index before pregnancy period, the information collected from the females residing in Punjab was in use. Two hundred and sixty four females who gave new birth of a live single child were the participants of this research work. Females with a previous history of diabetes during pregnancy, smokers, having premature deliveries were excluded from this case study. This is an assessment of the information collected in one hospital.

The age of mother, weight before pregnancy, parity & height data was collected from the patients in an interview. Weight and height of the patients used for the calculation of body mass index before pregnancy. Institute of Medicine method classified the body mass index. Body mass index is known as underweight when it is 19.7 or below, over weights from twenty-six to twenty-nine and fat in case of

above or equal to twenty-nine. The amounts of body mass index from 19.8 to 26 are considered ideal [7]. Underweight collection is separated into two groups; heavy underweight and low underweight, based upon the amount of body mass index. PI is concluded by the cube of the height at the time of birth divided by weight at the time of birth.

Weight at the time of birth was separated into three groups. First group consists of twenty five hundred grams and below babies, 2nd was between twenty five hundred grams to four thousand grams and 3rd group was four thousand grams and above. Weight at the time of birth compared with the groups of body mass index, weight before pregnancy and the age of the mother. The association between PI, body mass index groups and weight of infant at the time of birth was assessed. The division of the females into four separate groups carried out on the basis of quantity of their children. Fourth group had four or more children.

T test and ANNOVA were in use for the statistical analysis. The level of significance was 0.05. Tukey method was in use for post hoc assessment. SPSS software version twelve was in use for the analysis of information.

RESULTS:

Two hundred and sixty four willing females were the participants of this research work. The participants were from sixteen to forty year of age. The average age of their husbands was 31.51 ± 7.60 years. Eighty seven percent females were twenty to thirty four year of age. Fifteen females were less than nineteen years and nineteen females were greater than thirty five year of age. The mean birth weight of the new born babies was 3303.8 ± 456.8 grams, Mean height was 50.5 ± 1.9 centimetres & PI was 25.36 ± 2.65 . More than ninety one percent babies had birth weight in moderate range. Twelve newborn babies were less than 2500 grams and eleven babies were more than 4000 grams. The average weight before pregnancy was 60.4 ± 11.6 kilograms, the height of mothers was 161.8 ± 5.6 centimetres and weight gain during pregnancy was 13.8 ± 6.1 kilograms. The mean body mass index was 22.95 ± 3.99 kg/m². The percentage of the females according to groups of body mass index is described in Figure-1.

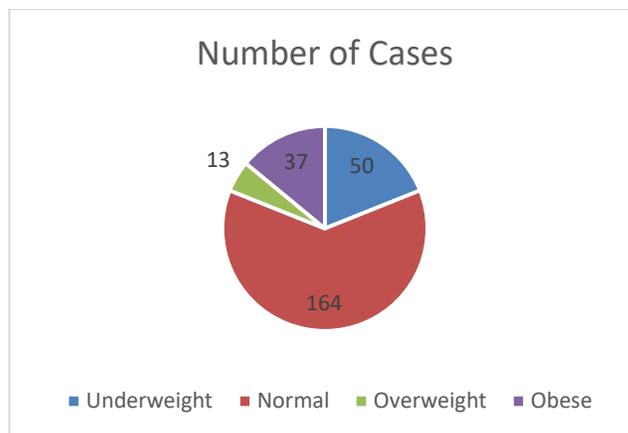


Fig-1: The No of mothers shown according to BMI groups

The average amount of birth weight & PI based on body mass index before pregnancy is provided in Table-1. All the associations between different factors are available in Figure-2.

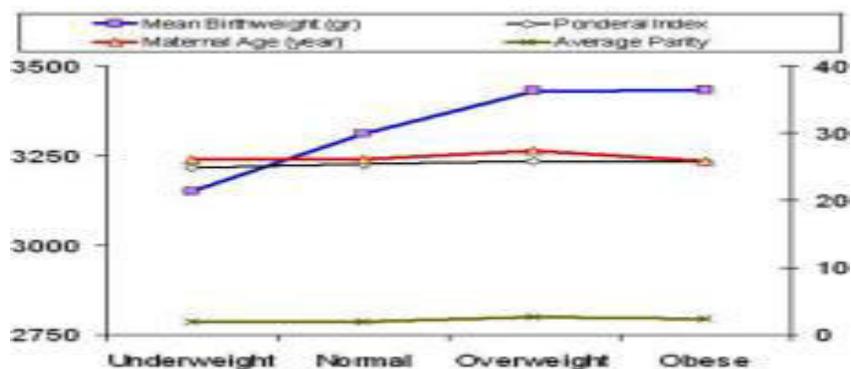
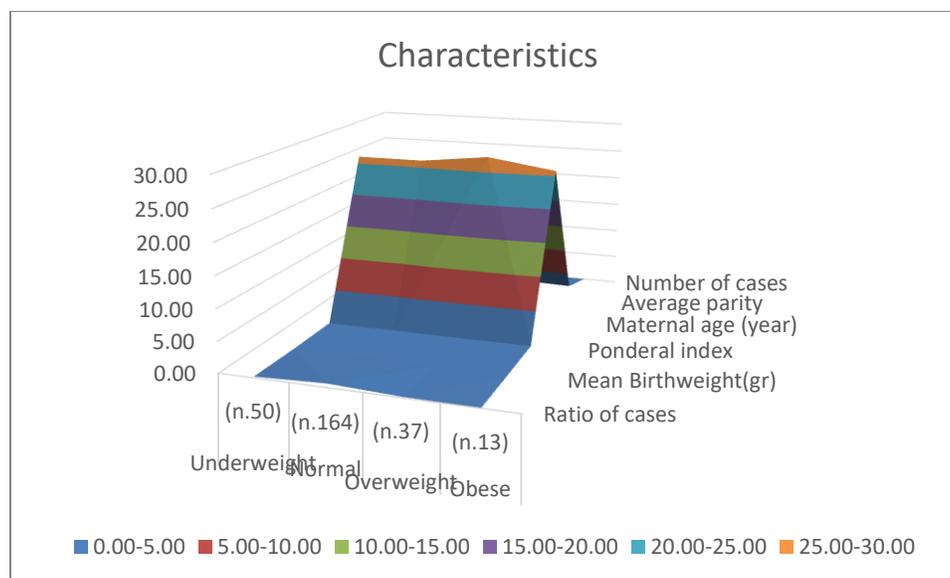


Fig-2: BMI groups compared with different parameters

There were twenty six females of multi parity were present in the study. There were 86 mothers with 2 children and 533 females were with three children. The body mass index of mothers had no impact on PI.

BMI	Underweight	Normal	Overweight	Obese
Number of cases	(n.50)	(n.164)	(n.37)	(n.13)
Ratio of cases	18.90%	62.10%	14%	4.90%
Mean Birthweight(gr)	3.150±0.453	3.311±0.460	3.430±0.408	3.433±0.430
Ponderal index	24.91±2.38	25.38±2.88	25.81±2.31	25.68±1.74
Maternal age (year)	26.1	26.1	27.4	25.8
Average parity	1.94	1.94	2.66	2.38

Abbreviations: IOM: Institute of Medicine - BMI: Body mass index



DISCUSSION:

Nutrition impacts the life of human being at every stage of life. Females with worse nutritional status will jeopardize their life and the life of their siblings. Nutritional attitude during pregnant period and before pregnancy has the ability to alter the quality of life and health condition of the child. It is very vital to comprehend the association between nutrition before pregnancy & development of the unborn baby. Ethnicity & gene influence the body mass index but it can help in the evaluation of the energy balance [8]. There are various differences present about nutritional attitudes & sources of food in different areas. High & less values of maternal body mass index can affect the growth of unborn child. In this research work, the values of body mass index classified in accordance with procedure mentioned by Institute of Medicine.

The mean weight at the time of birth of the babies born by underweight body mass index mothers was 3150 grams. The mean birth weights of fat and overweight mother were 3365 grams & 3480 grams. Therefore, the numbers of fat mothers in this study were low. But the birth weight of the children from fat women was not greater than 4000 grams or above which is in contrast with many previous research works [8-11]. Birth weight rises with the increase of maternal body mass index; it is similar to the research work of Mitchell & his colleague [12]. PIs were not altering with the before pregnancy body mass index of the mother as mentioned in Figure-2. Mothers with underweight body mass index have a danger for the low development of the foetal [2].

It is concluded that body mass index before

pregnancy has the ability to predict the weight of foetal [3, 4, 13]. The minimum value of BMI in IOMs criteria was 19.7 kg/m² for the underweight people. Some author defined it as 18.5 kg/m² for thin females [2]. There were fifty mothers with underweight body mass index on this case study. Thirty two mothers were in serious underweight group and eighteen mothers were in normal underweight group. We were unable to find statistical disparity for PI & birth weight.

The participants with body mass index of less than 17 were very less for interpretation in this research work. Some research works conclude that body mass index of mothers and birth weights of the children were increasing with the increase of parity [5, 6]. In this case study, mothers were separated into three different groups (nineteen years or less, between twenty and thirty four years, thirty five years and above) for assessing the impact of age on birth weight & PI. This factor was under consideration in only fifteen mothers below nineteen years of age. It displayed that the age of mother had not any impact on body mass index, birth weights of the new born and PIs. Meanwhile, the weight before pregnancy and weight gain during pregnancy had not any impact on the age of mothers. Under nutrition foetal may be predicted as low mother weight before pregnancy. It is very important to tackle the nutrition status of the mothers in before pregnancy period to mitigate the less birth weight of new babies.

CONCLUSION:

There is a close relation in the parity and birth weight of the new born. We found no statistical disparity between the BMI of mothers before pregnancy and PI of the children. The low birth weight can be tackle with the promotion of nutrition condition.

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