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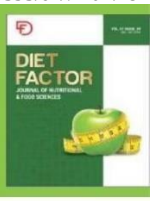

Original Article

Comparison Between The Dietary Practices Among Females Giving Birth To Normal And Low Birth Weight Babies

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ABSTRACT

In malnourished people, low birth weight is frequent mainly due to intrauterine growth limitations. Low birth weight is linked with high rates of fetal deaths, poor growth in childhood, abnormal brain development, and long-term illness in adulthood. Maternal poor dietary intake, habits, and practices are directly associated with low birth weight. **Objective:** To Compare the dietary practices among females giving birth to normal and low birth weight babies. **Methods:** The pediatric and gynecology departments of Sir Ganga Ram Hospital and the University of Lahore Teaching Hospital, both in Lahore, undertook comparative cross-sectional research. The study lasted four months, and the sample size was 100 women, divided into two groups: Group I, 50 women who gave birth to normal-weight babies, and Group II, 50 women who gave birth to low-weight babies. The data were collected utilizing a pre-tested questionnaire/Performa. SPSS version 21.0 was used to analyze the data. The chi-square test was used to compare the data. **Results:** Current results showed that anemia was more common in pregnant females giving low birth weight babies as compared to females with normal-weight babies. Analysis revealed that there was a link between mothers' nutritional consumption and their children's birth weight. **Conclusions:** LBW was more prevalent amongst all the pregnant females, with inadequate dietary practices, inappropriate food choices, myths, or restricted diet during pregnancy due to peer pressure leading to low birth weight babies. The rate of LBW was more affected by their food choices as compared to mothers with normal-weight babies.

INTRODUCTION

In developing and underdeveloped nations, particularly in malnourished people, low birth weight is frequent mainly due to intrauterine growth limitations. Low birth weight is linked with high rates of fetal deaths, poor growth in childhood, abnormal brain development and long-term illness in adulthood. A worldwide goal is set by WHO to minimize the rate of low birth weight to 30% by 2025 [1]. Premature infants are in danger of death and mental and social complications in their childhood. Moreover, the babies may develop chronic diseases like diabetes mellitus and heart diseases in later life [2]. Large consumption of coffee by women and increased prevalence of smoking by women during their gestation period are associated with low birth weight Infants may have low birth weight as a result of preterm birth [3], intrauterine growth restriction or these two factors might combine to result in low birth weight. Maternal illness may also contribute to preterm birth which accounts for around one-third of infants born with low birth weight in emerging nations [4], Cigarette smoking, low pre-pregnancy BMI and low gestational weight gain [5]. Infants of undernourished mothers, specifically with restricted growth are reported with a high occurrence of brain disorders and asthma [6]. Women who experience sadness and some worry in the middle of their gestation period may have some chances of giving birth to low weight infants [7].Girls of very young age may also give birth to infants with low birth weight. Children of young girls are having high chances of ill-treatment, increased incidence of disease; wounds along with mental, social and emotional difficulties [8]. The malnourished mother who undergo successive pregnancy is at risk as she gets no enough time to progress from load of previous pregnancy.

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During pregnancy needs for various nutrients are increased like proteins by 54%, energy by 13%, vitamin and minerals by 0-50% [9]. The fetus completely depends on mother for nutrition and energy during gestation period. Women along with gaining weight must balance it with adequate ingestion of certain nutrients. Women in western nations gain around 10-12 kg weight during their gestation period whereas in underdeveloped countries women gain around 2-7 kg weight [10]. Multiple reasons are found to contribute low birth weight including mother qualification, mother's age, anemia, mother's weight, strenuous activity, tobacco consumption and family beliefs [11].Good nutrition of mother is the main factor to contribute in growth of a fetus [12]. The nutritional status of a mother is assessed by measuring composition of body, biochemical measurements which include measurement of iron, folate and vitamin C, ways of food and energy intake and ingestion of essential nutrients [13]. A study was made by Lagiou P *et al.,* in 2004. At Boston's Beth Israel Hospital, 402 pregnant women were found to be eligible. A total of 224 women were tracked from their first prenatal appointment until delivery. A food frequency survey was used to validate pregnant women's nutritional consumption throughout the second trimester during the 27th week of pregnancy. Neither energy nor any of the energy-generating substances were found to be significantly associated to birth size. Although maternal weight growth and birth size are highly linked, the dietary connection with weight gain is not taken into account in the same way as birth-size factors [14]. Another study was organized by Knudsen VK *et al.,* in 2008. The Danish National Birth Cohort collected data on a maternal diet (DNBC). There were two primary food trends identified. The first pattern was characterized by the intake of red and processed meat, as well as high-fat dairy products, whereas the second pattern was characterized by the consumption of vegetables, fruits, poultry, and fish. According to their diet, women were divided into three groups: the first group consumed a lot of food in the first dietary pattern, the second group favoured items in the second pattern, and the third group ingested foods from both patterns. In compared to women in the first class, the odds ratio of having a small for gestational age newborn (with a birth weight below the 2.5th percentile for gestational age and gender) was 0.74 in the second class [15]. Tina B et al. did a study in 2006 to look at the link between fetal development and fruit and vegetable diet in a western culture, namely the Danish National Birth Cohort (DNBC). 101,045 women in the early stages of pregnancy were enrolled in the study for long-term monitoring of themselves and their babies. Fruit consumption was shown to have the greatest link, with birth weight increasing by 10.7 g each quintile. All of the relationships favored the thin mothers (BMI 20), whose children's birth weight increased by 14.6 grams for every quintile increase in fruit consumption [16]. Another research was made by Loy SL *et al.,* in 2011 in which 121 pregnant women were examined at 28 to 38 weeks gestation aged 19 to 40 years, were enrolled from the University Sains Malaysia Hospital, Malaysia. 2 of the 6 vegetable subgroups and fruits are eaten up during pregnancy. An increase in 10 g of leafy vegetables was linked with 1.78 cm increase in head size and in tuber vegetables it was linked with birth length and head size [17]. In a study of 803 Japanese women, eating habits throughout pregnancy, neonatal anthropometric measures after delivery, and the risk of a small-for-gestational-age (SGA) birth were investigated. The following three dietary patterns were discovered: "meat and eggs," "wheat products," with a relatively high intake of bread, confectionaries, and soft drinks, and "rice, fish, and vegetables" (n174). Among the three dietary patterns, women who followed the 'wheat products' pattern had children with the lowest birth weight and head size. In terms of weight, women in the 'wheat products' pattern had a higher chance of having an SGA child than women in the 'rice, fish, and vegetables' pattern, but not in terms of birth length or head size. These findings suggested that during pregnancy, a diet heavy in bread, confectionaries, and soft drinks and low in fish and vegetables 56 might be connected to low birth weight and a higher risk of having SGA babies [18]. The purpose of this study is to assess the dietary practices of postpartum females giving birth to normal and low birth weight babies. As if less or no awareness and false dietary practices would be found among pregnant females, attempts could be made to create awareness regarding a balanced diet and healthy food choices, through health education. So that the mortality of low birth weight babies among females can be reduced.

METHOD

The pediatric and gynecology departments of Sir Ganga Ram Hospital and the University of Lahore Teaching Hospital, both in Lahore, undertook comparative cross-sectional research. The study lasted four months, and the sample size included 100 females. and divided into two groups, Group I 50 females giving birth to normal weight babies Group II 50 females giving birth to low birth weight babies. Data were collected after the ethical approval from The University of Lahore by using the nonprobability sampling technique. Females not giving birth to live babies, Non-cooperative and Females from other hospital were excluded. Data collection was carried out by using pre-tested questionnaire/Performa. Data were analyzed with the help of SPSS version 21.0. Frequencies and percentages were calculated to determine dietary practices. Data were compared by applying the chi-square test.

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RESULTS

The current result showed that anemia was more common in pregnant females giving low birth weight babies as compared to females with normal weight babies as shown in (Table 1). Similar results were found in previous studies conducted by Bakhtiar UJ *et al.*, Anemic women had 3.4 and 1.8 times more risk of having a premature delivery and LBW babies than the women that were non-anemic 46. Siza JE *et al.*, studied pregnant females' high prevalence of LBW including anemia was (25%) [19].

Groups	Anemia		Total	p-value
	No	Yes		
Group I Mothers of normal weight babies	25	25	50	0.157
Group II Mothers of low birth weight babies	18	32	50	

Table 1: Association between Anemia and neonate's birth weight

Current results showed that mothers they were not consumed milk had low weight babies as compared to mothers who were consumed milk had normal weight babies as shown in Figure 1. Similar results were found in previous studies was conducted by Denis HM *et al.*, Maternal milk intake was linked with greater fetal weight gain in the 3rd trimester of pregnancy, which led to an 88 g increase birth weight 25. Fei Xue *et al.*, in the Nurses' Mothers Cohort were inspected that daily absorption of each additional glass of milk was correlated to an increase of 6 g in birth weight [20].

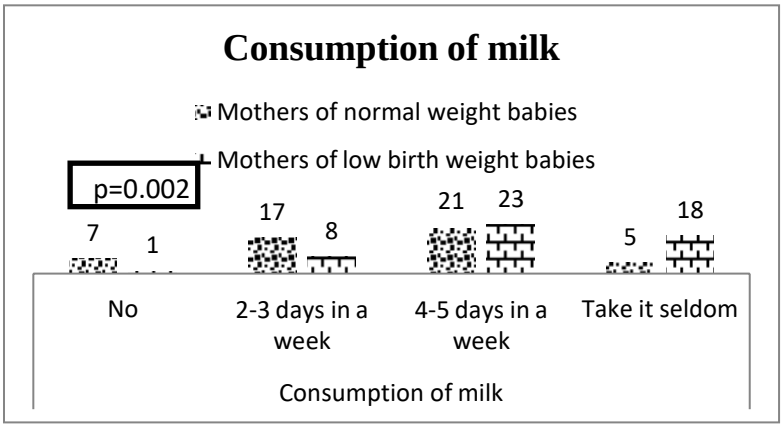

Figure 1: Association between consumption of milk and neonate's birth weight

In the present study showed that intake of protein was high in mothers of normal weight babies as shown in Figure 2. Previous study by Cuco G *et al.*, had also found that 1g increase in maternal protein consumption before pregnancy leads to remarkable increase of 7.8 – 11.4 g in birth weight [21].

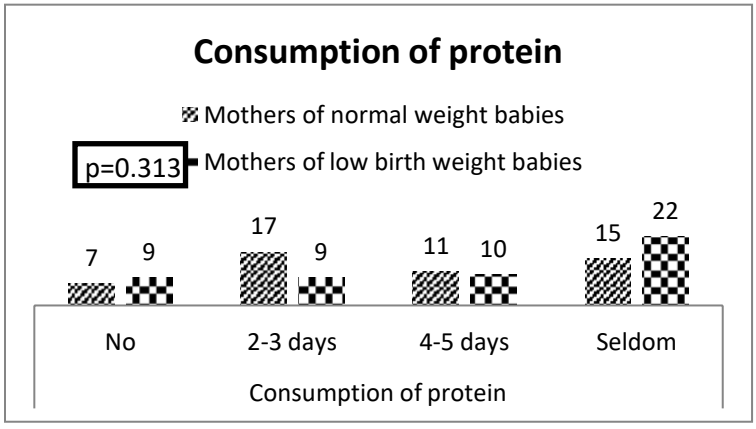

Figure 2: Association between consumption of protein and neonate's birth weight

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Nutrients	Group I Mean + SD	Group II Mean+ SD	Recommended Intake (RDA)
Food Energy (Kcal)	2218.9 + 709.7	1823.0 + 805	2200 Kcal
Protein (g)	92.3 + 37.3	76.3 + 35.7	71 g
Fat (g)	123.8 + 57.7	98.4 + 65.6	65 g
Carbohydrate (g)	190.7 + 56.2	159.0 + 55.2	175 g
Calcium (mg)	1238.2 +958	398.8 + 22.5	1000-1300 mg
Iron (mg)	27.2 + 12.0	24.7 +13.1	27 mg
Thiamine B1 (mg)	0.6 + 0.3	0.4 + 0.2	1.4 mg
Riboflavin B2 (mg)	0.8 + 0.6	0.7 + 0.6	1.4 mg
Niacin B3 (mg)	13.4 + 8.9	10.4 + 12.6	18 mg
Vitamin A (mcg)	1641 + 9194.6	669.6+ 88.8	750-770 mcg
Vitamin C (mg)	44.8 + 92.0	35.2 + 85.7	80-85 mg
Phosphorus (mg)	698.6 + 374.7	650.4 + 87.5	700 mg

Table 2: Nutrient Intake of pregnant females with low birth weight babies.

Niacin (B3) intake of females with normal weight babies was 13.4 + 8.9 but the females with low birth weight baby's intake of Niacin (B3) in a day was 10.4 + 12.6, whereas RDA during pregnancy is 18mg as shown in (Table 2).

DISCUSSION

Out of 100 subjects 50 mothers were normal weight babies and 50 mothers were low birth weight babies gave their 24-hour recall data. Nutrient intakes of these mothers were estimated through this data. Mean value of energy intake females with normal weight babies in a day was 2218.9 + 709.7 but the mean value of energy intake females with low birth weight babies in a day was 1823.0 + 805, whereas RDA of energy during pregnancy is 2200 Kcal. Mean value of carbohydrate intake females with normal weight babies in a day was 190.7 + 56.2 but the mean value of carbohydrate intake females with low birth weight babies in a day was 159.0 + 55.2, whereas 175 g is RDA. Mean value of protein intake females with normal weight babies in a day was 92.3 + 37.3 but the mean value of protein intake females with low birth weight babies in a day was 76.3 + 35.7, whereas RDA of protein is 71 g. Iron intake of females with normal weight babies was 27.2 + 12.0 but the iron intake of females with low birth weight babies was 24.7 + 13.1, whereas RDA is 27mg. Calcium intake of females 79with normal weight babies in a day was 398.8 + 22.5 but the calcium intake of females with low birth babies in a day was 1641.6 + 1284, whereas RDA is 1000-1300 mg during pregnancy. Mean intake of Phosphorus was high in which females with normal weight babies is 1798.6 + 774.7, but the females with low birth weight babies' intake of Phosphorus in a day was 650.4 + 87.5. Mean value of vitamin A intake of females with normal weight babies was as low as 669.6 + 88.8 but the mean value of vitamin A in which females with low birth weight babies was 1678.1 + 9125.8, whereas RDA during pregnancy is 750-770 mcg. Mean value of vitamin C intake of females with normal weight babies was 44.8 + 92.0 but the females with low birth weight was mean value of vitamin C is 35.2 + 85.7, whereas RDA is 80-85 mg. Thiamine (B1) intake of females with normal weight babies in a day was 0.6 + 0.3 but the thiamine (B1) intake of females with low birth weight babies in a day was 0.4 + 0.2, whereas RDA is 1.4 mg. Mean value of Riboflavin (B2) intake in which females of normal weight babies was 0.8 + 0.6 but the Riboflavin (B2) intake of females with low birth weight babies was 0.7 + 0.6, whereas RDA is 1.4 mg.

CONCLUSION

LBW were more prevalent amongst all the pregnant females, with inadequate dietary practices, inappropriate food choices, myths or restricted diet during pregnancy due to peer pressure leading to low birth weight babies. The rate of LBW were more affected by their food choices (lack of knowledge, improper antenatal care, less consumption of milk and protein and also fruits and vegetable) as compared to mothers with normal weight babies.

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