Relationship of Maternal Age, Educational level and Occupation on Birth weight of Neonates:

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Abstract: The weight of the infant is crucial for its survival, healthy growth and development. The present study was conducted to find out the relationship of maternal age, educational level and occupation on the birth weight of neonates. A comprehensive questionnaire-cum-interview schedule was designed to collect information. 400 singleton live born normal babies and their mothers were randomly selected. The sample was taken from Trust Maternity Hospital of Sher-e-Kashmir Institute of Medical Sciences (SKIMS) Soura Srinagar. The birth weight of neonate was assessed soon after birth by using scientifically designed weighing techniques. The results of the study revealed that overall there was a tendency for the average birth weight of the neonate to increase with the advancing age of the mother up to 25-30 years of age group. Thereafter, the average birth weight of neonates showed a decline in the later age groups. The study also revealed that as the educational status of the mother increased, the average birth weight of neonate also increased. Overall neonates born to illiterate mothers were having an average birth weight of 2.62kg as compared to neonates born to mothers who were graduate and post graduate , having an average birth weight of 3.15Kg and 3.32 kg respectively. Overall the average birth weight of neonates born to professional and skilled worker was more, followed by housewives as compared to those of semi skilled and unskilled workers.

Key Words: Birth weight, Neonates, Relationship, Maternal age, Maternal Educational status and Occupation.

INTRODUCTION

The birth weight of an infant is the single most important determinant of its chances of survival, healthy growth and development **(Park 2000)** .In India, the average weight of a normal newborn infant born after 40 weeks of gestation is around 2.8kg, whereas it is 3kg or more among affluent societies. In India the weight vary between 2.7 to 3.1 kg, with a mean of 2.9 kg. **(Dutta 2000).**

The factors believed to have a direct bearing on the birth weight of offspring's may act singly or in combination of two or more factors. These factors could be of maternal or obstetric nature. Maternal factors include those related to nutritional status, health status, socio-economic status, dietary intake of pregnant women, medications or radiations received by them and also their unhealthy behavior patterns that are potentially injurious to the growing fetus. Obstetric factors associated with birth weight of neonate may be fetal, uterine or placental. Apart from these maternal age, gestational age, parity, body mass index, maternal weight gain before and during pregnancy, weight and height of the mother, multi-fetal pregnancy and sex of the neonate are also believed to have a direct bearing on the birth weight of offspring's **(Dhaar and Rubbani 2006).**

The current study was conducted with an objective to assess the effect of maternal age, educational status and occupation on the birth weight of Kashmiri neonates. It is of immense importance to find out the relationship of birth weight with that of various maternal factors, so that we will come to know about the factors which affect the birth weight of neonate and as such we can take necessary steps to improve the birth weight of neonates. It is also hoped that this study will contribute to the literature on birth weight & be used as a source of information for intervention programmes. This relationship might offer some ways and means for initiating public health measures which may help in increasing the birth weight of the newborns and reducing their morbidity and mortality. The health & well being of children is not an end in itself but a means to an end: it is a means of achieving a purposeful, productive & peaceful future for mankind. As such it is of considerable interest to verify the impact of maternal

factors on the birth weight of neonates, thus the present study was conducted, keeping in view the following objective:

OBJECTIVES:

1. To find out the relationship of maternal age on the birth weight of neonates.
2. To find out the relationship of maternal educational status and occupation on the birth weight of neonates.

REVIEW OF LITERATURE:

Birth weight is the body weight of a baby taken at birth. **(Georgia Department of Public Health 2008).** The lower the birth weight, the lower is the survival chance of the new-born. Many of the low birth weight new-born become the victims of protein energy malnutrition (PEM) and infection. **(Park 2000).**

There are two main groups of low birth weight babies, those born prematurely (short gestation) and those with fetal growth retardation. In countries where the population of low birth weight infants is less, short gestation period is the major cause. In countries where the proportion is high (e.g. India), the majority of cases can be attributed to fetal growth retardation. **(Park 2017).**

A hospital based study conducted by **IItaf et al., 2017** revealed that among different risk factors associated with birth weight of neonate, maternal age, parity, monthly income of the family, gestational age , maternal occupation, illiteracy, low birth interval were found to be the important risk factors contributing to LBW babies .

A Cross sectional study was conducted by **Agarwal et al., 2012** with an objective to assess the impact of maternal social factors on the birth weight of newborn. 325 mothers who delivered live infants were interviewed. A result of the study revealed that prevalence rate of LBW was 32.3%. The highest prevalence of LBW was found among mothers aged <18 years, tobacco chewing addiction and smoking.

A longitudinal study conducted by **Rao et al., 2007** in Haryana. The analysis showed a significant association between the birth weight of baby and the maternal age, maternal education, per capita income of the family, time of antenatal registration, number of antenatal

visits, physical work during pregnancy, height and weight in pregnancy. A significant relationship between the calorie and protein intake by pregnant women during pregnancy with the birth weight of babies was also observed

METHODOLOGY

The present study was conducted in Trust Maternity Hospital of Sher-e-Kashmir Institute of Medical Sciences Soura Srinagar. The study included 400 pregnant women's who delivered single-ton live born normal babies. A weighing scale was used to assess the birth weight of the neonate. The weighing balance was tested from time to time using standard weights. Weight was determined by placing the neonate (Naked) on a scale within few minutes after birth and the weight was recorded on a prepared Performa. The tool used in the present study was essentially a questionnaire. Questionnaire was supplemented by an interview schedule to obtain the desired information.

DATA SOURCE AND COLLECTION

In the present study both the primary as well as secondary sources of data were utilized to obtain the desired information. Primary data was collected by using interview-cum-questionnaire schedule. The study covered 400 hospital delivered pregnant mothers and their offspring's, selected by purposive sampling technique. The babies birth weight was assessed within few hours of postnatal birth using standard weighing techniques and weighing scale and their weight was recorded on a pre prepared Performa. Mothers were questioned on relevant correlates of birth weight i.e age, educational status and occupation. Data collected from secondary sources represented the information obtained from books, unpublished dissertation, journals, and latest information from internet.

DATA ANALYSIS

For analysis of data Microsoft Excel and statistical package SPSS were used. The data was tabulated, analyzed and interpreted as per the needs of the study. Besides percentage, mean and standard deviation, other statistical tools were also used to see the correlation of

birth weight of neonates with various factors affecting it and significance of the results obtained.

RESULTS AND DISCUSSION

The results obtained from the present investigation are presented below:

Table1: Average Birth Weight of Neonates in Relation Maternal Age

Maternal Age (Years)	N	Mean Birth Weight(Kg) ±SD	p-value
≤ 20	23	2.54±0.23	≤ 0.0001*
20-25	124	2.67±0.35	
25-30	170	3.15±0.37	
30-35	62	2.99±0.43	
>35	21	2.61±0.17	

*Significant at 5%

Table 1 shows effect of maternal age on the average birth weight of neonates. The table reveals that overall there was a tendency for the average birth weight to increase with the advancing age of the mother up to 25-30 years of age group. Thereafter the average birth weight of neonates showed a decline in the age group of 30- 35 and above 35.The average birth weight of neonates born to mother ≤ 20 years of age was only 2.54±0.23Kg as compared to neonates born to mothers in the age group of 25-30 and 30-35 years, who where having better weight i.e. 3.15±0.37Kg) and 2.99±0.43kg respectively. The results were found to be statistically significant.

Maternal age plays vital role in pregnancy outcome in terms of birth weight of the neonate. It is recommended for women of reproductive age group to start planning for their

family in their early twenties and to stop at the age of 35 years or soon thereafter. Mothers younger than 20 years of age such as adolescent have severe problems not only with their own wellbeing and health status but with that of their babies as well. There are more chances of low birth weight babies, still births and neonatal deaths among very young mothers. Studies of this problem have reported that the best time for beginning child bearing is at 22 to 23 years of age. High maternal age such as after 35 years of age too is of significance in this respect, particularly in the developing countries such as India .A woman having her first child (primi-para) in her early thirties is at high risk of obstetric complications The risks of still-births, immaturity and preterm delivery are also greater among primipara. Women who continue childbearing into their late thirties as well as forties are also at high risk, as are their babies.

The findings of the present study are in agreement with the hospital based study conducted by **Bisai et al., (2006)** showed that the highest prevalence of Low birth weight was found in very young mothers (< 19 years of age). The study also revealed that as the age of the mother at the time of conception increased the birth weight of the neonate also increases, with a significant decrease in LBW.

Table2: Average Birth Weight of Neonates in Relation Maternal Educational Status

Educational Status	N	Mean weight (Kg) ±SD	p-value
Illiterate	76	2.62±0.29	≤ 0.0001*
Middle pass	58	2.61±0.27	
Matriculate	43	2.75±0.37	
Hr. secondary	57	2.89±0.40	
Graduate	112	3.15±0.37	
Postgraduate	54	3.32±0.29	

*significant at 5%

Table 2 shows the relationship of average birth weight of neonates with the educational status of their mothers. The table reveals that, as the educational status of the mothers increased, the average birth weight of neonate also increased. Overall neonates born to illiterate mothers were having an average birth weight of 2.62 ± 0.29kg as compared to neonates born to mothers who were postgraduates ,having an average birth weight of 3.32± 0.29. The results are statistically significant (P=≤ 0.0001).A possible justification could be attributed to the fact that illiteracy amounts to ignorance which prevents the mothers from availing the accessible health facilities. Better the education better the average birth weight of neonates because it is easier for an educated lady to know the significance of proper nutrition and various prophylactic measures during pregnancy as compared to an uneducated female.

Maternal socioeconomic status has most important affects on child health , (**Joseph et al., 2007, Kramer et al., 2000,Auger et al., 2009,Morgen et al.,2008,Mortensen et al., 2011**) possible due to delayed ANC, preterm delivery and unfavorable birth outcomes e.g. in terms of birth weight of the neonates**.(Martens et al., 2004,Joseph et al., 2009,Balchin & Steer 2007, Shapiro-Mendoza et al.,2008,Dominguez 2008,Heaman et al.,2005,Feijen-de Jong et al ., 2012).**

A hospital based study conducted by Metgud **et al., 2012** in India showed that maternal educational status was strongly associated with birth weight of neonate. A hospital based study conducted by **IItaf et al., 2017** revealed that among diverse risk factors associated with birth weight of neonate, degree of illiteracy was found to be one of the significant vital risk factors contributing to low birth weight (LBW) babies.

Table 3: Average Birth Weight of Neonates in Relation to Maternal Occupation

	N	Mean Weight(kg) ±SD	p-value
Professional	11	3.30±0.31	≤ 0.0001*
Skilled	70	3.31±0.37	
Semi skilled	58	2.71±0.26	
Un skilled	20	2.60±0.18	
Housewife	241	2.90±0.42	

*significant at 5%

Table 3 shows the relationship of occupation of mother on the average birth weight of neonates. The table reveals that overall the average birth weight of neonates born to professional and skilled worker was more i.e. 3.30±0.31kg and 3.31 ±0.37Kg respectively, followed by neonates born to housewives with an average birth weight of 2.90±0.42kg as against average birth weight of 2.71±0.26kg and 2.60±0.18Kg among neonates born to semi-skilled and unskilled workers respectively. The differences between the mean is statistically significant.

A hospital based study conducted by **IItaf et al 2017** revealed that among different risk factors associated with birth weight of neonate, maternal age and maternal occupation were found to be the important risk factors contributing to Low birth weight babies.

Major Findings:

- Overall there was a tendency for the average birth weight to increase, with the advancing age of the mother upto 25-30 years of age group. Thereafter the average birth weight of neonates showed a decline in the age group of 30- 35 and above 35.

- The average birth weight of neonates born to mother ≤ 20 years of age was only 2.54kg as compared to neonates born to mothers in the age group of 25-30 and 30-35 years ,who were having better weight i.e. 3.15kg and 2.99kg respectively.
- As the educational status of the mothers increased, the average birth weight of neonate also increased.
- Overall neonates born to illiterate mothers were having an average birth weight of 2.62 kg as compared to neonates born to mothers who were postgraduates ,having an average birth weight of 3.32kg . The results are statistically significant (P =≤ .0001).
- Overall the average birth weight of neonates born to professional and skilled worker was more i.e. 3.30kg and 3.31kg respectively, followed by neonates born to housewives with an average birth weight of 2.9kg as against average birth weight of 2.71kg and 2.60kg among neonates born to semi-skilled and unskilled workers respectively.

Conclusion:

It is concluded from the study that maternal age at conception, maternal educational status and occupation has a direct bearing on the birth weight of the neonate. As the maternal age at the time of conception and their educational level increased the average birth weight also increased. The average birth weight of neonates born to mothers in the age group of 25-30 years and 30-35 years were having better weight i.e. 3.15kg and 2.99kg respectively. The average birth weight of neonates born to professional and skilled worker was more i.e. 3.30kg and 3.31kg respectively, followed by neonates born to housewives with an average birth weight of 2.9kg .

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