



A STUDY TO EVALUATE EFFECT OF MATERNAL FACTORS INFLUENCING BIRTH WEIGHT OF NEWBORN

Paediatric Medicine

Dr. Jinit Patel	Resident Doctor, 2 nd Year, Dept of Pediatrics, Dr.M.K.Shah Medical College, Chandkheda, Ahmedabad.
Dr. Priyanka Patel	Assistant Professor, Dept of Pediatrics, Dr.M.K.Shah Medical College, Chandkheda, Ahmedabad.
Dr. Rajeshri Mehta	Associate Professor, Dept of Pediatrics, Dr.M.K.Shah Medical College, Chandkheda, Ahmedabad.
Dr. Ashok Bhandari	Professor, Dept of Pediatrics, Dr.M.K.Shah Medical College, Chandkheda, Ahmedabad.

KEYWORDS

BACKGROUND AND RATIONALE:

Low birth weight (LBW; WHO defined as <2.5 kg) has become the new public health concern at global level (contributes 60–80% of neonatal deaths) as it is one of the strongest risk factor associated with neonatal mortality and morbidity. (1) Various factors including maternal age, the sex of the child, maternal education level, wealth index, religion, insurance coverage, location of residence, maternal body mass index (BMI), anemia status, history of stillbirths, birth spacing, and adequate antenatal care (ANC) visits can have influence on birthweight. Most of the above mentioned factors are identified as a modifiable factor that could potentially be improved in order to reduce the risk of LBW.

Hence, the main aim of the study is to identify the maternal risk factors and accordingly counsel about the management to reduce the effects on birthweight of newborn in a tertiary care hospital at Ahmedabad.

AIM AND OBJECTIVE:

To determine and assess the influence of maternal risk factors on birth weight.

MATERIALS AND METHODS:

A cross sectional study was conducted at tertiary care hospital over a period of 6 months. Total 653 neonates were included in the study. Birth weight was recorded within 30 minutes after birth. Details of mother were collected by using questionnaire including age, demographic details, Hemoglobin (Hb), birth interval, income, obstetric history. Data were entered into MS excel sheet and analyzed using statistical package for the social sciences (SPSS).

RESULT:

Out of total 653 neonates including their mothers studied, 242 were LBW and remaining 411 were NBW (Normal Birth Weight). Among them 347 were males and 306 were females. Total 607 and 46 were term and preterm respectively. The study showed associations between birth weight and mother's age, weight, height, hemoglobin (Hb) %, birth interval, income, bad obstetric history and complications.

Table 1: Demographic Details Of Mother:

		N (Total=653)
Age (years)	<30	562
	>30	91
BMI (kg/m ²)	<25	560
	>25	93
Tobacco exposure	Yes	117
	No	535
Socio-economic class	Lower	306
	Middle	157
	Higher	190
Birth Order	1	458
	2	149
	>3	46
	H/O gestational diabetes mellitus	Yes
	No	619

Anemia	Yes	223
	No	430
Bad Obstetric history	Yes	177
	No	476

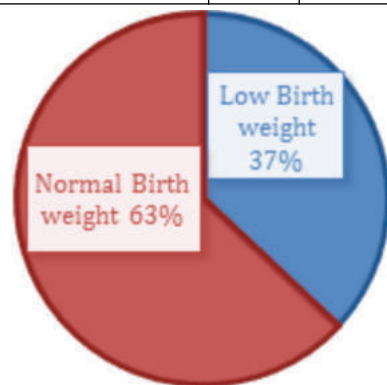


Figure 1. Distribution of Study Participants as per Birth weight. (n= 653). Overall 37% were found to have a LBW.

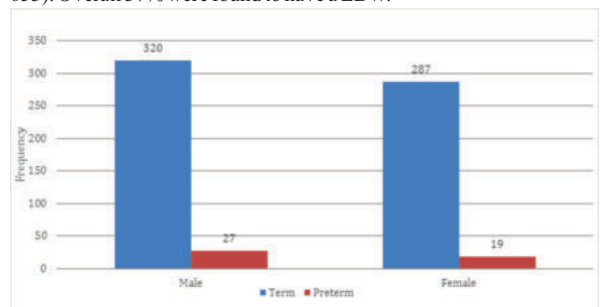


Figure 2. Distribution as per Gender and Gestational age (n=653)

In this study, 27 (out of 347;7.8%) males and 19 females (out of 306;6.2%) were born as pre-term.

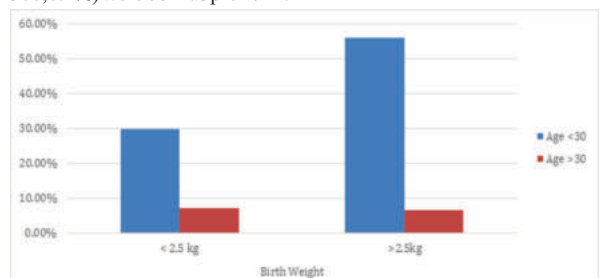


Figure 3. Distribution of Birthweight as per Mother's age.

In mother's with <30 years 34.6% had low birth weight. While in

mother's with >30 years of age 51.6% had low birth weight. Hence, age has clinically significant impact on the birth weight of the newborn.

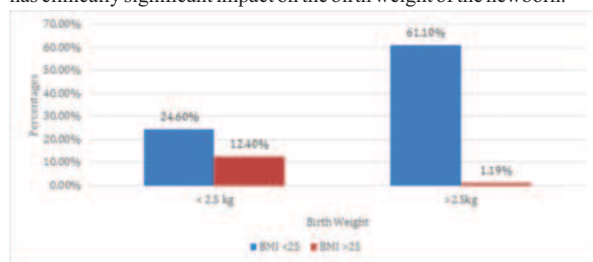


Figure 4. Distribution of baby weight according to mothers BMI

Through this comparison it is interpreted that when mothers BMI is less than <25, 399(61%) babies have normal birth weight and 166(24%) have low birth weight and when mothers BMI is >25, 12(1.9%) babies have normal birth weight and 81(12%) have low birth weight.

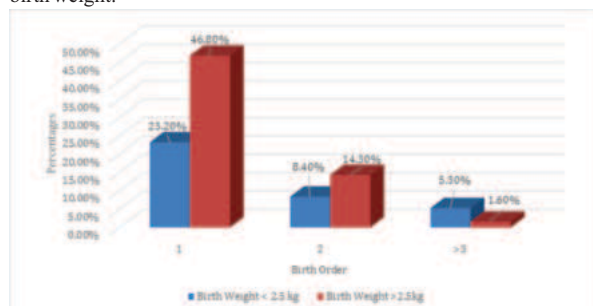


Figure 5. Distribution Of Birth Weight According To Birth Order Of Babies

Through this histogram it is clear that as the birth order of baby increases the average birth weight of the baby decreases.

Table 2: Comparison Of The Mother's Determinants And Birth Weight Of Newborn

Mother's variable	Birth Weight		p-value	
	< 2.5 kg	>2.5kg		
Age	<30	195	367	0.029
	>30	47	44	
BMI	<25	161	399	0.181
	>25	81	12	
Tobacco Exposure	Yes	78	39	0.020
	No	163	372	
Socio-economic Class	Lower	101	205	0.787
	Middle	83	74	
	Higher	58	132	
Birth Order	1	152	306	0.98
	2	55	94	
	>3	35	11	
H/O Gestational Diabetes Mellitus	Yes	5	29	0.176
	No	237	382	
Anemia	Yes	189	34	0.03
	No	53	377	
Bad Obstetric History	Yes	156	21	0.000
	No	86	390	

There was significant association found between Birth weight of babies and Age of mother, history tobacco exposure, presence of anaemia, and bad obstetric history.

DISCUSSION:

This study was carried out with an aim to examine and assess the influence of maternal factors affecting the neonatal birth weight in pregnancy.

A prevalence of low birth weight in this study was 37%. In study conducted by The prevalence rate of low birth weight in the study was 22.9% in study conducted by Metgud et al⁽²⁾. Different studies have revealed that significantly associated risk factors for the birth weight of a newborn vary according to the geographical location and the study

population. The present study revealed that in anaemic mothers had significantly higher number of low birth weight babies (84.7%). The result were consistent with study done by Muftah et al. were LBW odds were higher in mothers with presence of anaemia⁽³⁾.

In our study, 88% LBW babies born with mother's who had bad obstetric history. In study done by MS Anu et al., it was 47.5%⁽⁴⁾.

The present study showed maternal factors had influence on the weight of the baby which was statistically significant (p<0.001). Bad obstetric history played a role influencing the weight of the baby which was also suggested in the study by MS Anu et al⁽⁴⁾.

A study by Rebecka et al reported LBW was prevalent among low socio-economic families which was comparable with this study. The mothers with higher socioeconomic status found to have healthy babies⁽⁵⁾.

CONCLUSION:

This study concluded that maternal factors are associated with birth weight owing to mother's age, weight, height, anaemia, birth interval, bad obstetric history with complications and family income. Health education and large-scale awareness programs implementation can reduce and prevent this public health problem.

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