



A STUDY OF EFFECTS OF DEMOGRAPHIC FACTORS ON NEWBORNS ANTHROPOMETRY IN WESTERN RAJASTHAN.

Anatomy

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ABSTRACT

Aims & Objectives: The aim of present study is to find out the effect of maternal demographic factors including: maternal area and maternal religions on Anthropometric measurements of newborn in western Rajasthan, India.

Methods: The Study was carried out on 1019 mothers and their newborn at Umaid Hospital, Dr. Sampurnanand Medical College Jodhpur, Rajasthan. Maternal demographic factors including: maternal area and maternal religions. Anthropometric measurements of newborn included the weight and length of neonates.

Conclusion: Low birth weight was higher in newborn of urban mother than newborn of rural mother. On the multivariate analysis by ANOVA test, maternal area was highly significant ($p < 0.01$) effect on birth weight and length. Low birth weight was higher in babies of Muslims mothers than Hindu Mothers.

KEYWORDS

Maternal Demographic Factors, Maternal Area, Maternal Religion, Birth Weight, Lbw.

INTRODUCTION:

Pregnancy, birth and motherhood, in an environment that respects women, can powerfully affirm women's rights and social status without jeopardizing their health. The enabling environment for safe motherhood and childbirth depends on the care and attention provided to pregnant women and newborns by communities and families, the acumen of skilled health personnel and the availability of adequate health-care facilities, equipment, medicines and emergency care when needed. (1)

Poor maternal, newborn and child health remains a significant problem in developing countries. Worldwide, 3,58,000 women die during pregnancy and childbirth every year and an estimated 7.6 million children die under the age of five. (2) Low birth weight (LBW) is an important cause of perinatal, neonatal and post-natal morbidity and mortality. In developing countries, LBW of newborns is mainly due to the poor socio-economic and environmental conditions of the mother. (3)

There are numerous factors contributing to LBW, both maternal and fetal. The mortality of LBW can be reduced if the maternal risk factors are detected early and managed properly. (4 and 5) Thus, it is necessary to identify factors prevailing in a particular area responsible for LBW. During the past decade, several interventional programs including reproductive and child health have been launched all over the India to improve the health status of mothers and children. (3)

In rural areas of western Rajasthan, the evidence on the association between various maternal demographic factors and LBW is scarce. The aim of present study is to find out the effect of maternal demographic factors including: maternal area and maternal religions on weight and length of newborn in western Rajasthan, India.

MATERIALS AND METHODS:

Present study was conducted at department of Anatomy, Dr. Sampurnanand Medical College Jodhpur, Rajasthan, India. The Study carried out on 1019 mothers and their newborns at Umaid Hospital. The hospital data (obstetric history) and clinical condition were recorded from the tickets of mother and their newborns.

Demographic factors included following parameters:

Maternal Area: There were urban and rural maternal area was included.

Maternal Religion: Maternal religion included Hindu and Muslim mothers.

The study was performed by measuring the length and weight of the neonates.

Birth weight with naked neonate in supine position was obtained soon after birth by digital scale with 10 gram subdivision. Other anthropometric variable including chest, head circumferences, thigh circumference, calf circumference, were measured by non extendable measuring tape, with a width of 1.0 cm and subdivisions of 0.1 cm. and birth length was measured by infantometer, head circumference was obtained by placing tape along the largest occipito-frontal diameter along over the occiput and eyebrow.

Ethical clearance and approval for conducting this study was obtained from the ethical committee of the Rajasthan University of Health Sciences and correspondent hospital's ethical board committees. Prior informed consent was obtained from the mothers participating in this study after full explanation of the study.

The data were analyzed on Graph Pad Prism software and expressed as mean $\pm$ S.D ($n=6$). Statistical multivariate analysis was performed by ANOVA test. The results were considered statistically significant, if $p < 0.05$. The level of significance was considered as under:

*Significant $p < 0.05$, **Highly significant $p < 0.001$, Non significant $p > 0.05$.

OBSERVATION:

Present study was carried out on 1019 mothers just after they delivered their newborn. Observation were showing in the table number 1 to 4.

DISCUSSIONS & RESULTS:

Fetal growth depends on duration of gestation and uptake of nutrients from mother through placenta. Uptake of nutrients depends on many factors like nutritional status of mother, dietary intake during pregnancy, utilization and absorption. Nutritional factors are also likely to influence placental function including vascular structure and efficiency of placental transport.

Present study shows that out of 1019 mothers, 442(43.38%) were urban and 577(56.62%) were rural. Out of 442 urban newborn, 286 (64.7%) were having normal birth weight, 130(29.41%) were having low birth weights, 14(3.16%) with very low birth weights, 4(0.9%) with extremely low birth weight, 13(2.94) were still born and 4(0.9%) were born with congenital anomalies while out of 577 rural newborn, 373 (64.64%) were having normal birth weight, 131(22.7%) were low birth weights, 30(5.19%) were very low birth weights, 5(0.86%) were extremely low birth weight, 9(1.55) were still born and 20(3.46%) were born with congenital anomalies.

On the multivariate statistical analysis by ANOVA test, maternal area had significant ($p < 0.05$) effects on length of neonates (Table No.1).

When we compared the present study with Ashwaq A et al (2009) we observed that in his study new born length shows highly significant affects the maternal area that was matched.

Present study shows that out of 1019 mothers, 882(86.56%) were Hindu and 137(13.44%) were Muslims.

Incidence of Hindu mother was much higher than Muslims mother in the present study as we compared with other Indian studies it was similar. Rajasthan has a mainly Rajasthani population of approximately 68,621,012. Rajasthan's population is made up mainly of Hindus, who account for 88.8% of the population. Muslims make up 8.5%, of the population.

Newborn distribution, in new born of Hindu mothers were 571(64.73%) having normal birth weight, 215(24.37%) were low birth weight, 40(4.53%) were very low birth weight, 8 (0.9%) were extremely low birth weight, 1(0.11%) was high birth weight, 19(2.15%) were still born and 28(3.17%) were born with congenital anomalies.

Newborn distribution in new born of Muslims mothers there were 89(64.96%) having normal birth weight, 36(26.27%) were low birth weight, 4(2.91%) were very low birth weight, 1 (0.72%) was extremely low birth weight, 1(0.72%) was high birth weight, 6(4.37%) were still born (Table No. 4). On the multivariate analysis by ANOVA test, maternal religion had significant ($p < 0.05$) effects on length of neonates. (Table No. 2)

Present study showed that mean birth weight was higher in newborn of Hindu mother than newborn of Muslim mother as we compared with other study it was not similar. (Table No. 3).

CONCLUSION:

Percentage of normal, low birth weight and still born was higher in newborn of urban mother than newborn of rural mother. On the multivariate analysis by ANOVA test, maternal area was highly significant ($p < 0.01$) effects on birth weight and length.

Number of Hindu mothers were much higher than Muslim mother in the present study because we done our study in Rajasthan, India and here the population of Hindus are higher in comparison of Muslims. Percentage of normal, low birth weight and still born were highest in babies of Muslims mothers than Hindu Mothers.

Observation Tables:

Table No. 1.: Effects of Maternal Area on New Born Anthropometry

S. No.	New Born parameters	Urban Newborns		Rural Newborns		Statistical Analysis (ANOVA Test)	
		Male (Mean $\pm$ SD)	Female (Mean $\pm$ SD)	Male (Mean $\pm$ SD)	Female (Mean $\pm$ SD)	F value	p value
1	Weight (Kg)	2.53 $\pm$ 0.65	2.62 $\pm$ 0.55	2.47 $\pm$ 0.66	2.65 $\pm$ 0.62	4.59	0.003**
2	Length (cm)	47.11 $\pm$ 3.82	46.84 $\pm$ 3.61	46.2 $\pm$ 4.24	47.27 $\pm$ 3.89	4.23	0.005**

Table No. 6.: Effects of Maternal Religion on New Born Anthropometry

S. No.	New Born parameters	Newborns of Hindu Mothers		Newborns of Muslim Mothers		Statistical Analysis (ANOVA Test)	
		Male Mean $\pm$ SD	Female Mean $\pm$ SD	Male Mean $\pm$ SD	Female Mean $\pm$ SD	F value	p value
1	Weight(kg)	2.6 $\pm$ 0.64	2.54 $\pm$ 0.61	2.54 $\pm$ 0.62	2.52 $\pm$ 0.63	0.85	0.46
2	Length(cm)	47.18 $\pm$ 3.88	46.46 $\pm$ 4.04	47.33 $\pm$ 3.77	46.55 $\pm$ 3.72	2.88	0.03*

Note: $p > 0.05$ (Non significant), * $p < 0.05$ (Significant), ** $p < 0.01$ (Highly Significant)

Table No. 3. Comparison of mean Birth Weight (kg) in Various Studies:

Studies	Hindu	Muslims
Lohitha (2012)	2.59	2.70
Present study (2015)	2.57	2.53

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