ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

SOCIODEMOGRAPHIC STUDY OF LOW BIRTH WEIGHT BABIES, MATERNAL & FETAL FACTOR

KEY WORDS: Birth weight, Pregnancy, Socio-demographic, Low birth weight.

Dr. Gopal Agarwal Resident doctor, Department of Obstetrics & Gynaecology, JLN Medical College, Ajmer.

Dr. Purnima Pachori* Senior Professor and Head of Department, Department of Obstetrics & Gynaecology, JLN Medical College, Ajmer. *Corresponding Author

Dr. Urvashi Associate Professor, Department of Obstetrics & Gynaecology, JLN Medical College, Ajmer.

ABSTRACT

Background: Birth weight is an important predictor of early neonatal mortality, morbidity, and long-term health outcomes. In India, the prevalence of LBW is around 18.6 percent according to rapid survey report on children 2014. The aim of this study was to identify socio-demographic factors associated with the birth weight of newborns in Rajkiya Mahila Chikitsalaya, Ajmer, Rajasthan, India. **Methods:** The present cross-sectional study was conducted during April 2018 to October 2019 on women who were delivered at RMC, Ajmer. Total 100 LBW babies were selected randomly with inclusion criteria i.e. singleton infants, after consent of their parents and multiple pregnancies or congenital anomalies babies were excluded from this study. The socio-demographic variables like age, residence, religion, income and the maternal characteristics like weight, parity, spacing, hemoglobin, utilization of ANC care and outcome of pregnancy was recorded in terms of birth. **Results:** We found that mean age of the participants, mean gestation age at birth and mean birth weight were 25.17 ± 2.70 year, 38.13 ± 1.47 weeks and 2.25±0.17 Kg respectively. The mean BMI and mean Hb were 23.02 ± 2.55 Kg/mt2 and 8.92 ± 0.96 gm/dL respectively. Total 64% participants were found in normal BMI and 33% participants were found with low SES whose babies BW between 2.1 – 2.5 Kg. We found 29 participants with 2 parity whose babies BW between 2.1 – 2.5. Total 69 participants had zero visited while only 5 patients had 3 anti natal visit. **Conclusion:** The evidence from this study suggests that maternal educational level, socio-economic status, haemoglobin level, parity, number of ANC visits, and gestational age are independent predictors of low birth weight.

INTRODUCTION

Birth weight is an important determinant of an infant's survival and future development.[1] Low birth weight (LBW) is defined as weight less than 2500 grams at birth regardless of gestational age. LBW puts a newborn at increased risk of death and illness and limits their growth potential in the adulthood.[2] The incidence of low birth weight in a given population reflects its socio-economic –development. Every fourth baby in India is low birth weight baby accounting for a high load of morbidity and mortality. Every year 8 million low birth weight babies, 2.7 million preterm babies and 1 million very low birth weight babies are born in India. In our study we found that maternal factors like age, socio-economic status, religion and occupation of the mothers were related to LBW of the newborns.

MATERIAL AND METHODS

The present cross-sectional study was undertaken at Rajkiya Mahila Chikitsalaya, JLN Medical College, Ajmer, Rajasthan, India from April 2018 to October 2019 on women who delivered in the hospital. All birth cards with low birth weight and all singleton infants whose parents gave written informed consent were included.

The data on socio-demographic characteristics and maternal risk factors was collected using predesigned and pre-tested interview schedule. The socio-demographic variables was age, residence, religion, income and the maternal characteristics was weight, parity, spacing, hemoglobin, utilization of ANC care. Outcome of pregnancy was recorded in terms of birth.

RESULTS

Our study shows that maximum number of mothers were in the age range of 25 to 28 years, i.e. 54%, followed by age-group range of 21 to 24 years, i.e. 31%. Similar finding were reported by Bhue PK et al, maximum mothers were found in age group 20 -29 years (74.12%).

Table – 1

Demographic distribution	
Age Group (Year)	**No. of Patients**
17-20	6 (6%)
21-24	31 (31%)
25-28	54 (54%)
29-32	9 (9%)
Rural/Urban	**No. of Patients**
R	83 (83%)
U	17 (17%)
Education	**No. of Patients**
Graduate	7 (7%)
High School	33 (33%)
Illiterate	12 (12%)
Primary	48 (48%)

Our study shows that Majority of mothers 83 (83%) were from rural area and only 17% mother from urban area. Similar finding were reported by Bhue PK et al and ML Taywade et al, maximum mothers were found from Rural area (84.6%) and (69.4%) respectively.

Among the study participants, 12% were illiterate, 33% had high school education, 48% were primary education and only 7% with Graduate education. Similar finding were reported by ML Taywade et al, maximum mothers were found in education ≥8 class (78.8%) and also similar results were observed by AK Jawarkar et al maximum mothers were found in education below high school (69.53%).

Table – 2

Distribution according ANC Visit and Parity

Table – 2	
Distribution according ANC Visit and Parity	
ANC VISIT	No. of Patients
No visit	69
1	17
2	9
3	5
Parity	Number
1	17
2	30
3	29
4	17
5	4
6	3

Our study shows that maximum mothers (69%) had no ANC visits, 17% mothers were with one ANC visit, 9% mothers had two ANC visits and only 5% mothers had three ANC visits. Similar finding were reported by AK Jawarkar et al, maximum mothers were found in low ANC visits (55.77%).

As per parity, our study shows that 30(30%) mothers were para two, 29(29%) were third para, 17% in both parity one and four, 4% with five parity and 3% with six parity. AK Jawarkar et al observed that 41.03% mothers with parity one, 35.13% mothers with parity two and 17.44% mothers with parity three.

Table – 3	
Distribution according to Family status, Socio-economic status & Religion	
Family status	Number
Joint	17
Nuclear	83
SES	Number
L	40
LM	23
UL	25
UM	9
U	3
Religion	Number
Christian	3
Hindu	78
Muslim	16
Sikh	3

Our study shows that 83% mothers belonged to nuclear family and 17% were from Joint family. Bhue PK et al observed that 87% mothers belongs to Nuclear family.

Majority of mothers 40 (40%) were from low SES as compared to lower middle and upper lower class 23(23%) and 25(25%) respectively. The proportion of LBW baby increased with decrease in SES and was highest in lower class (40%). Bhue PK et al studied that 87.06% mothers belongs to lower class.

According to religion distribution, majority of mother were Hindu i.e. 78% and 16% were Muslims, 3% were Christians and 3% were Sikh. AK Jawarkar et al observed that 76.16% were Hindu, 8.84% were muslims.

DISCUSSION

Our study shows that maximum number of mothers were in the age range of 25 to 28 years, i.e. 54%, followed by age-group range of 21 to 24 years, i.e. 31%. Similar finding were reported by Bhue PK et al[3], maximum mothers were found in age group 20 -29 years (74.12%). According to Aras RY et al[4] results of multivariate analysis showed a U-shaped relationship between maternal age and LBW among whites, with the youngest (younger than 15) and the oldest (aged 40 and older) mothers being at high risk than 25-29 years old; older teenagers were not at any significantly higher risk. For the black, the risk of LBW rose steeply with maternal age (mothers aged 15-19 years are significantly lower risk than those of 25-29 years for LBW infants).

Our study shows that Majority of mothers 83 (83%) were from rural area and only 17% mother from urban area. Similar finding were reported by Bhue PK et al[3] and ML Taywade et al[5], maximum mothers were found from Rural area (84.6%) and (69.4%) respectively.

Among the study participants, 12% were illiterate, 33% had high school education, 48% had primary education and only 7% were Graduate education. Similar finding were reported by ML Taywade et al[5], maximum mothers were found in education ≥8 class (78.8%) and also similar results were observed by AK Jawarkar et al[6] maximum mothers were found in education below high school (69.53%). According to Manzur Kader et al[7], birth weight of the baby is greatly influenced by mother's level of education and having some kind of maternal education (oppose to no education) have a protective effect against LBW. It is likely that women with no or low level of education and/or knowledge may practice poor health habits (e.g., smoking, drug or substance uses, etc.). Additionally they may be very poor and lacks access to adequate healthcare resources (e.g., antenatal care, iron supplements, etc.) which consequently may influence fetal growth.

Our study shows that maximum mothers (69%) had no ANC visits, 17% mothers were with one ANC visit, 9% mothers had two ANC visits and only 5% mothers had three ANC visits. Similar finding were reported by AK Jawarkar et al[6], maximum mothers were found in low ANC visits (55.77%). Manzur Kader et al[7], found a strong association between lack of antenatal care and low birth weight and the results are in agreement with previous studies. Antenatal care provide routine monitoring of height and weight gain, identification of medical maternal or fetal problems, counseling against tobacco or substance use, provide psychosocial support, nutritional advice, and early intervention which may reduce adverse pregnancy outcomes including LBW. Lack of access to ANC could be influenced by many factors including lower socio-economic status and poor knowledge. Therefore, utilization of ANC should be further investigated to understand obstacles and opportunities to improve services.

Majority of mothers 40 (40%) were from low SES as compared to lower middle and upper lower class 23(23%) and 25(25%) respectively. The proportion of LBW baby increased with decrease in SES and was highest in lower class (40%). Bhue PK et al[3] studied that 87.06% mothers belongs to lower class. According to Manzur Kader et al[7] Low socio-economic status is one of the strongest predictors of LBW in low-income countries. In contrast to previous findings, low socio-economic status was not significantly associated with LBW in this study. Perhaps in spite of poor socio-economic status if a woman could maintain a good nutritional status and avoid potential medical complications during pregnancy, giving birth to a normal weight baby might be a possibility.

Our study shows that 83% mothers belonged to nuclear family and 17% were from Joint family. Bhue PK et al[3] observed that 87% mothers belongs to Nuclear family. In nuclear family as there is no one to take care of pregnant lady, she has to do

daily household works with or without good nutrition and proper rest. Proper medication is also not taken. In multipara pregnant lady no one care her children other than her. In joint family care taker are there who give proper rest, nutrition and advices regarding pregnancy so there is less chances of low birth weight baby.

According to religion distribution, majority of mother were Hindu i.e. 78% and 16% were Muslims, 3% were Christians and 3% were Sikh. AK Jawarkar et al[6] observed that 76.16% were Hindu, 8.84% were muslims. Also observed by Bhue PK et al[3], 96.50% were Hindu & 1.4% were muslims. According to Prerna Bansal et al[8] the relation between religion and birth weight was not significant.

REFERENCES

1. Wilcox AJ (2001) on the importance—and the unimportance—of birth weight. International Journal of Epidemiology 30: 1233–1241.
2. Albertsson-Wikland K, Karlberg J (1994) Natural growth in children born small for gestational age with and without catch-up growth. Acta Pædiatrica 83: 64–70.
3. Bhue PK, Acharya HP, Pradhan SK, Biswal P, Swain AP, Satapathy DM. Socio-demographic factors associated with low birth weight in a tertiary care hospital of Odisha. International Journal of Community Medicine and Public Health. 2018 May;5(5):1797.
4. Aras RY. Is maternal age risk factor for low birth weight?. Arch Med Health Sci 2013 [cited 2019 Dec 21];1:33-7.
5. Taywade ML, Pisudde PM. Study of sociodemographic determinants of low birth weight in Wardha district, India. Clinical Epidemiology and Global Health. 2017 Mar 1;5(1):14-20.
6. Jawarkar AK, Lokare PO, Dore S. Study of socio-demographic and maternal determinants influencing birth-weight. J MGIMS. 2012;17(2):28-33.
7. Kader M, Perera NK. Socio-economic and nutritional determinants of low birth weight in India. North American journal of medical sciences. 2014 Jul;6(7):302.
8. Bansal P, Garg S, Upadhyay HP. Prevalence of low birth weight babies and its association with socio-cultural and maternal risk factors among the institutional deliveries in Bharatpur, Nepal. Asian Journal of Medical Sciences. 2019;10(1):77-85.