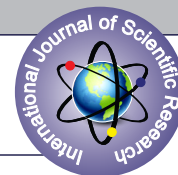


STATISTICAL ANALYSIS OF SOCIO-ECONOMIC AND DEMOGRAPHIC FACTORS AFFECTING BIRTH WEIGHT OF NEW-BORN AMONG INSTITUTIONAL DELIVERIES



Community Medicine

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ABSTRACT

Birth weight of a newborn is an important predictor of its chance of survival and physical and mental growth. The various obstetric, psychological, socio-economic, demographic and maternal morbidity related factors can affect the birth weight. The present study was conducted to find out the proportion of low birth weight babies among the babies born at tertiary care hospital and to find out association between various Socio-economic and demographic factors and birth weight. The present cross-sectional study was conducted during the period 1st Dec. 2021 to 31st Jan. 2022 among 390 mothers admitted in post-partum ward after delivery and fulfill the inclusion criteria. Descriptive statistics and Chi-square test were applied for analysis. In the present study, proportion of LBW was 27.4%. LBW percentage was higher among illiterate mothers, mothers engaged in agriculture work, mothers belonged to scheduled caste and lower socio-economic class. LBW percentage was higher among illiterate mothers, mothers engaged in agriculture work and mothers belonged to scheduled caste and lower socio-economic class. The finding of study emphasized on improvement of female education. Higher education status can help in getting better occupation opportunity and in improving the socio-economic status of the family.

KEYWORDS

Low-birth-weight, Maternal education, Socio-economic status

INTRODUCTION

Birth weight is an important marker of maternal and fetal health. If the weight of the new born baby recorded just after birth is less than 2,500 gm irrespective of the gestational age, then the baby is considered as a low birth weight (LBW) baby. (WHO, 1992).¹ Low birthweight newborns have a higher risk of dying in the first 28 days of life. Babies who survive are more likely to suffer from slower growth and lower IQ. The consequences of low birthweight continue into adulthood, increasing the risk of adult-onset chronic conditions such as obesity and diabetes.² LBW babies are approximately 20 times more likely to die than heavier babies.³ Low birth weight of newborn is a worldwide problem because of its serious short term and long-term effects on babies. The prevalence of low birth weight varies according to geography and socio-economic status of countries. The prevalence of low birthweight varied widely across regions – from 7.2 per cent in More Developed Regions to 17.3 per cent in Asia. There were also variations across subregions. In Southern Asia, the prevalence of low birthweight was 26.4 per cent in 2015 – more than five times higher than the 5.1 per cent prevalence in Eastern Asia.⁴ Birthweight is one of the most important variables of concern to many governments in developing countries as it contributes to infant mortality rate.⁵ Present study was conducted to identify various socio-economic and demographic factors associated with low birth weight.

MATERIAL AND METHODS

The present hospital based cross-sectional study was conducted at a tertiary care hospital of south-Central part of the Saurashtra Peninsula, Gujarat, India. The period of study was Dec. 2021 to Jan. 2022. Mothers along with new-born delivered at tertiary care hospital during the study period were included in study.

Inclusion Criteria:

1. Mothers with live birth babies
2. Mothers with singleton babies

Exclusion Criteria:

1. Mothers with multiple delivery
2. Mothers with still birth
3. Mothers who didn't provide informed consent

Sample Size: Prevalence of low birth weight in Gujarat was 19 % in NFHS-4. So, sample size was calculated by considering proportion of LBW as 19%, margin of error 4%. Sample size was calculated by using the formula $n = 4pq / d^2$, therefore $n = 4 \times 19 \times 81 / 4 \times 4 = 385$. So, sample size was taken as 390.

The purpose of study was explained and informed consent was obtained from mothers before interview. Pretested semi-structured questionnaire was used to collect information from mothers. Case paper and available health records were also reviewed for collecting required information. Study variables included in the study were birth weight of newborn, area of residence, caste, religion, type of family, maternal education, maternal occupation and socio-economic status of family. Babies with birth weight less than 2500 gram were considered as low birth weight babies irrespective of gestational age. Prior ethical clearance was taken from institutional ethics committee. Analysis was carried out using version 21.0 of SPSS. Chi square test was applied to find association between variables. The p-value less than 0.05 was taken as statistically significant with a confidence level of 95 %.

RESULTS

Out of 390 newborn babies, 107 (27.4 %) were low birth weight babies. Majority of mothers (68.5%) were from rural area. Proportion of LBW was 30.3% among mothers living in rural area and 21.1% among mothers living in urban area. Most of mothers (93.1 %) were Hindu. Proportion of LBW was 27.8% among Hindu mothers, 17.4% among Muslim mothers and 50% among mothers belonged to other religion. Majority of mothers (55.1%) were from OBC caste followed by ST (21.8%) and SC (12.3%). The proportion of LBW was 42.8% among other caste followed by ST with 41.2%. 69.2% mothers belonged to joint family out of which 26.3% mothers delivered low birth weight babies. Proportion of low birth weight was 30% among mothers belonged to nuclear family. In present study, 43.6% mothers were illiterate. Proportion of low birth weight was 37.1% among illiterate, 12.5 % among mothers studied up to secondary school, 11.8% among mothers educated up to higher secondary and 16.7% among mothers who were graduate or above. In this study, 53.6 % mothers were house wife, 42.3% mothers were engaged in agricultural work and 4.1 % mothers were doing other work. The proportion of LBW was highest (38.8%) among the mothers who were engaged in agricultural work. 39.5% mothers belonged to middle socio-economic class and 39.7% mothers from lower middle socio-economic class. Proportion of LBW was 45.5% among mothers belonged to lower class and 34.8% among mothers belonged to lower-middle socio-economic class. There was no statistically significant association of low birth weight with religion, area of residence and type of family. There was highly significant association of low birth weight with caste, maternal educational status, maternal occupation and socio-economic status of family.

DISCUSSION

In this study, 27.4% babies were LBW babies. Study conducted by Saini S et al.⁶ showed 28.8% prevalence of low birth weight. Similarly, Bhue P K et al.⁷ observed 27.76% proportion of low birth weight. We found that proportion of LBW newborns was 30.8% among mothers living in rural area and 21.1% among mothers residing in urban area. A study conducted by Jogia P D et al.⁸ also not found significant association between mother's area of residence and low birth weight and observed that proportion of LBW newborns was 17.7 % among mothers living in rural area and 19.43% among mothers living in urban areas. In present study, proportion of LBW newborns was higher (27.8%) among mothers belonged to Hindu religion as compared to (17.4%) mothers belonged to Muslim community. A study conducted by Balbir S et al.⁹ observed 28.63% proportion of LBW babies in Hindu mothers and 36.06% in Muslim mothers. In our study, we found significantly higher (41.2%) proportion of LBW babies among mothers belonged to scheduled tribe caste as compared to 10.7% among mothers belonged open caste, 23.7% among mothers belonged to OBC caste and 25% among mothers belonged to scheduled caste. Zaveri A et al.¹⁰ found that proportion of LBW newborns was 16.2% among mothers belonged to forward caste, 18.4% in schedule caste, 19.5% in schedule tribe caste and 17.1% in other backward classes. We found that proportion of LBW babies was 26.3 % among mothers belonged to joint families and 30% among mothers belonged to nuclear families. Similarly, Borah M et al.¹¹ found 20.6 % proportion of LBW infants among mothers living in joint families and 24.3 % among mothers living in nuclear families. In our study, proportion of LBW babies was significantly higher (37.1%) among illiterate mothers. Similarly, Narain S et al.¹² also observed higher (51.35%) proportion of LBW babies among illiterate mothers. Study conducted by Balbir S et al.⁹ observed that proportion of LBW newborns was 50 % among illiterate mothers. In present study, LBW newborns proportion was 38.8% among mothers engaged in agriculture activities and 18.2% among house-wife mothers. A study conducted by Bhue P K et al.⁷ found that proportion of LBW newborns was 25.10% among house-wife mothers and 67.14% among mothers who were manual laborer. We found higher (45.5%) proportion of LBW newborns among mothers belonged to lower socio-economic class as compared to (14%) among mothers belonged to upper class and (12.1%) among mothers belonged to upper-middle class. There was a highly statistically significant association between socio-economic status and LBW. A study conducted by Kumar M et al.¹³ found 20% LBW babies among mothers belonged to lower socio-economic class and 25.1% among mothers belonged to upper lower socio-economic class. Aproova M S et al.¹⁴ observed 32.8% proportion of LBW infants among mothers belonged to socio-economic class IV and V. These both studies also found highly significant association between LBW and socio-economic status of family.

CONCLUSION

LBW percentage was higher among illiterate mothers, mothers engaged in agriculture work and mothers belonged to scheduled caste and lower socio-economic class. The finding of study emphasized on improvement of female education. Higher education status can help in getting better occupation opportunity and in improving the socio-economic status of the family.

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