A STUDY ON SOCIO-ECONOMIC FACTORS FOR LOW BIRTH WEIGHT CHILDREN

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ABSTRACT

Birth weight is the most important factor that affects infant and child mortality. This 3 months study was conducted in a cohort of pregnant women to study the proportion of low birth weight babies and to find out the socio-economic condition for low birth weight children. Newborn care has always been a challenge to paediatrician and more so with Low birth weight babies. LBW is defined by WHO as birth weight less than 2,500 gms irrespective of the period of their gestation. Information regarding socio-economic status, obstetric history and present pregnancy was collected. These women were followed up till their delivery and birth weight was recorded with 24 hours of delivery. Birth weight was available for 200 births. The main factors which were significantly associated with LBW were socio-economic condition (education, community, burden of labor) and per capita income of family.

INTRODUCTION

Newborn care has always been a challenge to pediatrician and more so with low birth weight babies. Birth weight is single most important marker of adverse perinatal, neonatal and infantile outcome. Low birth weight is defined by W.H.O as birth weight less 2,500 gram irrespective of the period of their gestation. Birth weight is governed by two major processes; duration of gestation and intrauterine growth rate. LBW is thus caused by either a short gestation period or retarded intrauterine growth or a combination of both[.1,2,3] Prematurity is usually defined as a gestational age of less than 37 weeks. Although intrauterine growth retardation (IUGR), which is also referred to as "small-for-gestational-age has no generally accepted standard definition, birth weight less than 10th

percentile for gestational age and birth weight less than 2 standard deviations below the mean value for gestational age indicates IUGR.[4]

LBW being one of the global indicators of community health, it is imperative that periodic monitoring be undertaken to evaluate the impact of preventive health services[5]. During past decade, several intervention programmes including Safe Motherhood and Reproductive Health, have been launched all over to improve the health status of mothers and children. It was in this context, the present study was designed to find out the effect of various socio-economic conditions. The babies born with low birth weight are prone for both immediate and late complications. Immediate complications are birth asphyxia, hypoglycemia, hypocalcaemia, hypothermia increased risk of infections etc. long term complications are failure to thrive, diabetes mellitus, hypertension learning difficulties etc. The factors that affect birth-weight may be biological or socio economic-demographic and also related to the health services. Mainly mother's health condition, history of previous low birth delivery, illness,

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complication in pregnancy, and past adverse pregnancy outcome may cause low birth weight [6-8]. Even outdoor air pollution results in delivery of low birth Maternal nutritional status is a prime the new born baby's weight. Nutrition mother is also influenced by several socio economic and demographic (2005) estimated in Swaroop Rani Nehru Hospital in Allahabad during 34.4% newborn were low- [10]. The management of low birth weight babies needs lot of man power, infrastructure and money which is difficult to afford in developing countries. This study aims at identifying the maternal demographic risk factors that can cause low birth weight in the babies so that efforts can be put in eliminating these risks of these babies, no identifiable cause is found. It is thought that maternal demographic factors play a role in the causation of low birth weight babies.

MATERIALS AND METHODS

This was prospective study carried out babies born at Nilofur hospital Hyderabad between September toNovember , 2013. Two groups of post natal mothers who delivered babies in the preceding 7 days were included in the study. First group included mothers who gave delivery to term low birth weight babies. Term was defined as completion of 37 weeks of gestation mothers who had significant illnesses during pregnancy were excluded and mothers who delivered babies with significant congenital anomalies excluded. Second group included mothers who delivered normal birth weight babies normal birth weight was defined as birth weight of 2500 to 4000 grams. Each group included 100 mothers. Mothers were interviewed and 5 demographic variables age of the mother conception, educational status of mother occupation of the mother. Monthly family income and history of consanguinity were recorded. All the relevant information regarding mother and new born was documented on prestructured proforma. Details of mother education, mother occupation, family income, consanguinity. The Pre-Pregnancy weight of mother was not available in all mothers, hence mother weight was recorded immediately after delivery on a weighing machine measured nearest to 100 grams. The height of mother was measured on stadiometer nearest to 1 cm. Socio-economic class was categorised from I to IV according to Kuppu Swamy Socio Economic Scale considering mother education, mother occupation and income of the family.

Statistical Analysis

Chi square test was used for calculating P value. P value was considered significant if < 0.05. When more than 2 groups were available chi square for trend was seen by using SPSS version 10 software.

RESULTS AND DISCUSSION

Social demographers have had a long-standing interest in analyzing the determinants of adverse birth outcomes, including low birth weight and prematurity. For the most part, this interest stems from the close association between adverse birth outcomes and the risk of infant mortality. That is, the infant mortality rate for low birth weight infants is over twenty times that of their normal weight counterparts. Furthermore, birth outcomes are often viewed as the key intervening variable that link social factors such as race and maternal education to the risk of infant mortality. Indeed, controlling for adverse birth outcomes accounts for nearly the entire infant mortality gap between blacks and whites in the United States [9].

In contrast, the contribution of adverse birth outcomes to child health and developmental outcomes—particularly in combination with social risk factors—is much less well established in social demography in comparison to the literature on adverse birth outcomes and infant mortality [2,3,12,13]. This is particularly the case at the national level, where the data requirements for such longitudinal linkages between events that occurred at birth and outcomes many years later are particularly stringent. Indeed, unlike studies that rely on very large-scale databases to link birth outcomes and social risk factors to the risk of infant mortality, there are relatively few data sets that contain information that is necessary to link adverse birth outcomes with the long-range health and development trajectories of children and adolescents. National-level longitudinal data bases of its kind, to answer questions about the relationship of low birth weight and social risk factors to the cognitive development of children [5].

Many socio-biological factors have been postulated to determine the birth weight of the new-born. Principal among these are maternal age, maternal education, parity, sex of the baby, season of the year, hard manual labor, genetic factors, place of residence, antenatal care, maternal smoking, height, weight, marital status, race, gestation and socio-economic status. It has been shown that gestationally underweight babies have higher morbidity and mortality than babies of normal birth weight [11,12]. LBW babies are at increased risk of intrapartum asphyxia, neonatal pulmonary hemorrhage, hypoglycemia, hypothermia, respiratory and other infectious diseases, behaviour problems and complications of medical interventions.

Maternal Occupation

In this study most of the mothers were house wives (86%). The others were labourers, taifors, teachers, maid servants and sales women. Maternal occupation was classified into three groups as house wives, labourers and others. Near significant P value was found in other maternal occupation group. [12] study showed that occupation of mother reveals a trend association where the high mean birth weight was observed in the case of mothers having professional occupation and lowest in the case of manual workers. The present study was similar to

Mukherjee & Sethna. Where Mother was insignificant on statistical interpretation.

Maternal education

Maternal education ranged from illiteracy to graduation. Maternal education was divided into three groups as illiterates, primary education and secondary education and above. In illiterate group of mothers 56% had low birth weight babies and 44% had normal weight babies. There was near significant P value found in illiterate mothers. Present study was similar to study done by Sushma Malik et. al where literates (education beyond 4th standard) Vs. illiterates did not show to have any significant effect on the weight of the new born. On the other hand Saroj literacy and birth weight. study has shown some trend of association in mother.

Socio-Economic status

According to Kuppu Swami's scale socio-economic status the present study was divided into four classes considering maternal education, maternal occupation and family income. Class - I (upper), Class - II and III (middle) and Class - IV (lower). There was no significant P value found in any socio-economic class. On linear regression analysis, nearsignificant P value was

obtained. It indicates that as the socio-economic status improved the incidence of the low birth weight babies decreased. Similarly in N. Sreekumaran Nair et. al. study on Univariate analysis the significant association of socio-economic status with birth weight shown.

Community

In the study different communities were included like Hindus, Muslims and others. Most of them were Hindu mothers. Muslims were present 30% of the study population. Statistically there was no association of community with birth weight. It has been shown by Case control study in India that Muslim women had significantly reduced risk of giving birth to low birth weight babies compared to their Hindu counterpart. Similar to present study, there was no such relationship in community in study done by Srikumar.

Consanguinity

In the study 154 non consaguinous and 46 consaguinous marriedmothers were included. In consaguinous married mothers LBW babies were 46.9%. In non consaguinousmarried mothers LBW babies were 50.8%. On statistical study, there was no significant association of consanguinity with birth weight.

Table 1. From this study, Labor family has more incidence LBW childrens 54% and 36.3% more than 2.5 Kg B.w.

Maternal occupation	Total no of patients	<2.5 Kg body weight		>2.5 Kg Body weight	
		No	%	No	%
House wife's	125	63	50.4	66	52.8
Labor	55	30	54.5	20	36.3
Others	20	7	35	14	70

Table 2. According to education criteria Illetarates women has more incidence of LBW 57% and 48 % of more than 2.5 kg body weight children.

Maternal Education	Total	<2.5 Kg Body weight		>2.5 Kg Body weight	
		Number	%	Number	%
Illietarates	75	43	57.3	36	48
Primary Edu	65	30	46	33	50
Secondery & above	60	27	45	31	51.6

Table 3. In the present study different communities were included like Hindus, Muslims and others. LBW were more in Hindu community compared to other religious group.

Community	Total	<2.5 Kg Body weight children		>2.5 Kg Body weight children	
		Number	%	Number	%
Hindu	125	64	51.2	62	49.6
Muslims	65	30	46.1	31	47.6
Others	15	06	40	07	46.6

Table 4. Cosanguinity has incidence of 45% and NC has 52.2% in LBW.

Consanguinity	Total	<2.5KgLow B.w Number	%	>2.5 Kg Body weight number	%
C	66	30	45.4	35	53
NC	134	70	52.2	65	48.5

CONCLUSION

Demographers have long been interested in studying adverse birth outcomes, in large part because of their very strong influence on the risk of infant mortality and other severe medical problems during young childhood. However, few large-scale studies have investigated the effects of adverse birth outcomes onlonger-term risks during childhood and adolescence, in large part because of the stringent data requirements necessary to conduct such analyses. Among socio-economic factors,income and consanguineous marriage, and education of woman associated with weight. The public health program do seek to provide care to the newborn and also to work towards equity in such care so that the deprived sections are also assured of at least the minimum required care.

CONFLICT OF INTEREST:
The authors declare that they have no conflict of interest.

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