ORIGINAL RESEARCH PAPER | Medical Science | Volume : 6 | Issue : 9 | September 2016 | ISSN - 2249-555X | IF : 3.919 | IC Value : 74.50

A Comparative Study of Birth Weight with Reference to Socioeconomic and Demographic Factors Among Mothers in an Urban Slum of Mumbai

KEYWORDS: Low birth weight, socioeconomic and demographic factors, infant mortality.

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ABSTRACT *Low Birth Weight (LBW) is an important indicator of Reproductive health and general health status of population. Objective was to study socioeconomic and demographic factors associated with low birth weight. It was Case control study conducted at cheetah camp urban slum during the period of January 2013 to December 2013 involving 260 cases and 260 controls. Out of total 520 mothers 52.5% mothers were 20 to 25 years of age, 30.4% mothers of LBW babies were illiterate, 60.4% mothers of LBW babies belonged to Class IV. Majority 85% of mothers were housewives, 71.2% mothers lived in Nuclear family. Majority of the subjects were Muslims 76.3%. Age of Mother, maternal education, type of family were significantly associated with low birth weight.*

INTRODUCTION

Low Birth Weight (LBW) is an important indicator of Reproductive health and general health status of population. LBW is considered the single most important predictor of infant mortality especially of deaths within the first month of life.[1]It continues to remain a major public health problem worldwide especially in the developing countries.

To achieve this proper care is to be given even before a woman conceives, during pregnancy, delivery and after the birth.

The neonate signifies the beginning of life & provides a foundation for future health of Nation.[2]

Weight at birth reflects the Intra-uterine experience; it is a good indicator not only for mother's health and nutritional status but, also the newborns chances of survival, growth, long-term health and psycho-social development[3].

Low birth Weight carries a range of grave health risks for children[3].

By international agreement low birth weight has been defined as a birth weight of less than 2.5 kg, the measurement being taken preferably within the first hour of life, before significant postnatal weight loss has occurred.[4]

Those who survive have impaired immune function and increased risk of disease and they are likely to remain malnourished throughout their lives and suffer a higher incidence of diseases such as diabetes and hypertension in later life. Children born under-weight also tend to have lower I.Q (I.Q. that averages 5 points below those of children with birth weight in normal range[5]) and cognitive disabilities such as attention deficient disorders, affecting their performance in school and their job opportunity as adults[2].

The mortality of LBW can be reduced if the maternal risk factors are detected early and managed by simple interventions. Thus it is necessary to identify factors prevailing in a particular area responsible for LBW. With this background in mind the objective of the present study is to identify the maternal risk factors associated with LBW in an urban slum of Mumbai.

Materials and methods:

This community based case control study was conducted at cheetah camp urban slum during the period of January 2013 to December 2013 in the field practice area of Department of Community Medicine, Topiwala National Medical College, Mumbai. Sample size was calculated using the formula $n=4pq/l^2$ where Prevalence of LBW in India is 28%, So we had taken 260 mothers of low birth weight babies (cases) & 260 mothers of normal weight babies (controls). The WHO definition of LBW was used i.e. birth weight < 2.5 Kg.[4]

Sampling Method: Sampling was done by Simple random sampling method. In urban slum area with the help of anganwadi workers and CHV (community Health volunteer) all live birth babies were identified. Two lists were prepared. One list containing low birth weight babies (LBW) and other containing normal weight babies (NBW). Only the babies fulfilling inclusion criteria were included. This list served the purpose of sampling frame of 348 LBW and 694 NBW. Out of which 260 were selected from each group by random number table. Study subjects (Mothers of baby) were interviewed by using preformed, pretested, semi structured questionnaire. Data was collected from available previous records. The collected data was entered in Microsoft Excel 2007 and then data transferred to SPSS version 16, the data was numerically coded and entered. Added data was analysed with appropriate test like chi-square test to find the association of sociodemographic

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factors with LBW and to find out the level of significance with p value 0.05 considered as significant.

INCLUSION CRITERIA:

1. Mother having live Birth Child
2. Mother should be resident of urban slum for more than 1 yr.
3. Mother having baby of age less than 6 months.

EXCLUSION CRITERIA:

1. Multiple births (Twins, Triplets)
2. Child whose mother is dead.
3. Mother not willing to participate in a study.

RESULTS:

Table 1: Socio-demographic variables of study subjects

Characteristics		Birth weight of child				P value
		LBW		NBW		
Age	≤ 20	66	(25.4%)	42	(16.2%)	0.001
	20 to 25	149	(57.3%)	124	(47.7%)	
	25 to 30	33	(12.7%)	66	(25.4%)	
	≥ 30	12	(4.6%)	28	(10.7%)	
Maternal education	Illiterate	79	(30.4%)	48	(18.5%)	0.001
	Primary	103	(30.4%)	91	(35.0%)	
	Secondary	54	(20.8%)	66	(25.4%)	
	≥Higher Secondary	24	(9.2%)	55	(21.2%)	
Socioeconomic Class	I	12	(4.6%)	42	(16.2%)	0.001
	II	28	(10.8%)	75	(28.8%)	
	III	63	(24.2%)	54	(20.8%)	
	IV	157	(60.4%)	89	(34.2%)	
Maternal occupation	Housewife	215	(82.7%)	227	(87.3%)	0.268
	Semi-Skilled	21	(8.1%)	18	(6.9%)	
	Unskilled	24	(9.2%)	15	(5.8%)	
Religion	Hindu	45	(17.3%)	57	(21.9%)	0.300
	Muslim	206	(79.2%)	191	(73.5%)	
	Christian	9	(3.5%)	12	(4.6%)	
Type of family	Joint	87	(33.5%)	63	(24.2%)	0.020
	Nuclear	173	(66.5%)	197	(75.8%)	

It was observed that out of total 520 mothers 52.5% mothers were 20 to 25 years of age, 20.7% were ≤ 20 years of age,19.1% were 25 to 30 years of age followed by 7.7% were ≥ 30 years of age.

Only 18.5% mothers of NBW babies were illiterate, while 30.4% mothers of LBW babies were illiterate.

Majority of subjects 47.3% belonged to Class IV. It was observed that 60.4% mothers of LBW babies belonged to Class IV as compared to 34.2% mothers of NBW babies.

It was observed that majority 85% of mothers were housewives, whereas 15% were working mothers.

Majority of the subjects were Muslims 76.3%. The rest were Hindus 19.6% and Christians 4.1%.

It was observed that 71.2% mothers lived in Nuclear family and 28.8% lived in Joint family.

Discussion-

In this study it was observed that younger mothers had more LBW babies as compared to NBW babies. Similar findings were observed in studies performed by Malik et al[7] , Deshmukh JS et al[8] ,Hirve & Ganatra[6], Deswal et al[9], Joshi et al[10] which stated that maternal age was significantly associated with LBW.

It was found that illiterate mothers had more number of LBW babies as compared to NBW babies. Hence maternal education showed inverse relation to birth weight of baby. Mothers with lower educational status were at more risk of delivering low birth weight babies as compared to mothers with higher educational status.

Similar findings were observed in studies performed by Hirve & Ganatra[6] ,Joshi et al[10] which stated that maternal education was significantly associated with LBW.

It was seen that there was statistically significant inverse association between socioeconomic class and LBW. Socioeconomic Class is categorized according to Modified Prasad's Classification for urban urea[11]. Thus, it was observed that maximum mothers i.e 60.4% of low birth weight babies were from lower socioeconomic class. It was also clear that as socioeconomic status of mothers improves, chances of having low birth weight baby decreases. The association between socioeconomic class and LBW was found to be statistically significant.

Similar findings were observed in studies performed by Hirve & Ganatra[6], Deshmukh et al[8], Deswal et al[9], Joshi et al[10] which states that low socioeconomic status was found to be significantly associated with LBW.

It was observed in this study that chances of having low birth weight baby are higher among working mothers. However, the association between occupation of mother and birth weight was not statistically significant.

It was found that, Religion and LBW association was not statistically significant.

It was seen that chances of LBW were higher in mothers from joint family and the association between type of family and LBW was found to be statistically significant.

Conclusion

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The factors observed to be significantly associated with low birth weight were -

- Age of Mother
- Maternal education
- Per capita per month income
- Type of family

Maternal occupation, Religion showed no association with the LBW.

- Low birth weight continues to be a significant public health problem and as multiple factors are associated with it, more Holistic and multipronged approach is required.
- Education of mother had a significant impact on low birth weight hence education of girl child should be emphasised. Provision of free and compulsory education should be accompanied by awareness about importance of female education among community members including religion and political leaders, male members of the family and other influential people.
- Health education of pregnant women may also be done in groups with help of local NGOs like Mahila mandals, Mahila bachat gat etc.
- Regular health education programme should also be conducted in the community by social worker, Health volunteers and community health workers.
- Improving the family income by community based comprehensive strategy and various income generating schemes should be emphasized as a long term measure to reduce LBW rate.

Conflict of interest: **Nil**

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