

Study to Assess Sociodemographic Factors Affecting Low Birth Weight Baby in Urban Slum of Mumbai, Maharashtra, India.



Medical Science

KEYWORDS : Low birth weight, infant mortality rate, sociodemographic factors.

Dr Shailesh Palve

MD Community Medicine MO and ADHS (NLEP) Dhule

Dr Anita Shenoy

MD Community Medicine Associate Professor TNMC Mumbai

ABSTRACT

Background & objectives - Low birth weight (LBW) remains an unresolved important national concern in India. 29% of infant mortality rate is associated with LBW in India. 23% of the newborns in India have LBW. Birth weight is a major determinant of child's health and nutrition. Thus the aim of the study was to assess sociodemographic factors affecting Low birth weight baby in urban slum of Maharashtra. Methods - A cross-sectional study was done. Total 108 mothers of babies (upto 6 months of age), who had visited or admitted in maternity home during Nov to Dec 2011 period were interviewed using a pre-formed, pre-tested, semi-structured schedule. Results - Out of 108 babies 48(44.4%) were girls and 60 (55.6%) were boys. 38 (35.18%) babies had birth weight < 2.5kg, while 70 (68.81%) babies had birth weight > 2.5kg. Variables like age at pregnancy, ANC registration, contraceptive practices were found to have statistically significant association with LBW babies. Conclusion - Sociodemographic factors like age at pregnancy, ANC registration, contraceptive practices are significant associated with LBW babies and preventive measures should be taken for the same.

INTRODUCTION:

Low birthweight has been defined by the World Health Organization (WHO) as weight at birth of less than 2,500 grams (5.5 pounds).¹ Low birth weight (LBW) remains an unresolved important national concern in India. 29% of infant mortality rate is associated with LBW in India. 23% of the newborns in India have LBW.²

Birth weight is a major determinant of child's health and nutrition. The proportion of LBW has improved only marginally from NFHS 1 and 2 rounds. However, NFHS data does not offer quantitative estimates of birth weights. The NFHS 3 reports association of low birth weight to place of residence (urban or rural), age of mother, religion and caste, birth order of the baby, education, wealth and use of tobacco. NFHS 3 reports LBW for Maharashtra state to be 22%.³

Birth weight is the single most important criterion for determining the neonatal and infant survival. Low Birth Weight (LBW) is a sensitive indicator of the socioeconomic conditions and indirectly measures the health of the mother and the child. Babies with a birth weight of less than 2500 g irrespective of the period of their gestation are termed as Low Birth Weight (LBW) babies.⁴

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.⁵

It was in this context, the present study was designed to find out the effect of various socio-economic and maternal risk factors on the birth weight of institutionally delivered newborns in urban slum of Maharashtra.

METHODOLOGY:

Approval from the Institutional Ethics Committee was obtained. The municipal maternity home was selected. The necessary permission for carrying out the study was obtained from the Medical superintendent of the hospital after apprising him about the nature and the purpose of the study.

Sampling and Sample Size:

This was a Cross sectional study conducted at a Municipal maternity home at Cheetah camp, urban slum area of Mumbai. Universal sampling method was applied to select individuals. All mothers of babies (up to six months of age), who had visited or were admitted at the Maternity home during the study period i.e. 1st November 2011 to 31st December 2011 were included in the study. So the total sample size was 108.

Information was collected by interview technique, using pre-designed and pretested proforma. Verbal consent was obtained after explaining the nature and the purpose of the study.

Descriptive statistics were used to summarize baseline characteristics of the study subjects. Association between two categorical variables was analyzed by using Chi-square test along with 95% confidence interval (CI). P value < 0.05 was considered to be statistically significant. Data was analyzed using SPSS 16 statistical software.

RESULTS:

Out of 108 babies 48(44.4%) were girls and 60 (55.6%) were boys. 38 (35.18%) babies had birth weight < 2.5kg, while 70 (68.81%) babies had birth weight > 2.5kg.

Variables like age at pregnancy, ANC registration; contraceptive practices were found to have statistically significant association with LBW babies (p value < 0.05).

Table 1: Socio-demographic variables of study subjects

Variables < 2.5	Birth weight of child		p value	
	> 2.5			
Type of family	Nuclear	52.63	53.73	0.616
	Joint	34.21	38.81	
	Extended	13.16	7.46	
Sex of child	Male	39.47	47.14	0.44
	Female	60.53	52.86	
Age at pregnancy	< 18 yr	92.1	13.43	0.037
	> 18 yr	7.89	86.56	
ANC registration	Done	7.89	98.57	0.021
	Not done	92.1	1.42	
Family Planning	Yes	26.32	55.07	0.004
	No	73.68	44.93	

Table 2. Association of socio-demographic factors with birth weight of children

Variables	Values	%	
Religion	Hindu	27	25
	Muslim	81	75
Mothers Education	Illiterate	14	13.20
	Primary	10	7.54
	Secondary	62	58.49
	Higher Secondary	18	16.98

Mother Occupation	Housewife	103	95.28
	Teacher	5	4.71
Type Of Family	Nuclear	56	53.33
	Joint	42	37.14
	Extended	10	9.52
Age At Pregnancy	< 18 Year	53	49.08
	>18 Year	55	50.92
Gender Of Child	Male	48	44.44
	Female	60	55.55
Weight Of Child	< 2.5 kg	38	35.18
	≥ 2.5 kg	70	64.81

DISCUSSION:

A baby's low weight at birth is either the result of preterm birth (before 37 weeks of gestation) or of restricted foetal (intrauterine) growth.⁶ Low birthweight is closely associated with foetal and neonatal mortality and morbidity, inhibited growth and cognitive development, and chronic diseases later in life.⁷

Many factors affect the duration of gestation and of foetal growth, and thus, the birthweight. They relate to the infant, the mother or the physical environment and play an important role in determining the infant's birthweight and future health.⁸

In the present study 35.18% babies were low birth weight (LBW), while 68.81% babies had birth weight > 2.5kg. In a similar study in Nepal by Joshi H.S. et al. the prevalence of low birth weight baby was 34.37 %⁵. It was observed that most of the mothers were educated till secondary 62 (58.49%) and 103 (95.28%) were housewives.

The present study showed that birth weight was significantly associated with level of registration of antenatal care ($\chi^2=0.969$, $p<0.05$). Out of 108, 92% LBW babies were born to mothers who did not receive proper antenatal care. Anand K et al⁹ in their study observed that LBW was 50% in un-booked mothers.

Results of the present study also show that young mothers (< 18 years) have more number of LBW babies, in accordance with similar findings from other studies^{9, 10}. This reinforces the general importance of preventing early marriages and childbirths. Also use of contraceptive devices shows positive effect on LBW ($p = 0.004$) this must be due to increase birth spacing between two children because of family planning.

This study shows no influence of gender of the baby and type of family on LBW^{11, 12}.

CONCLUSION:

Age at delivery, inadequate antenatal care, use of contraceptive practices come out as major factors associated with LBW in newborns.

Reduction in LBW babies can be achieved by including health education component for adolescents (both males and females) and pregnant mothers in Maternal and Child health related program, especially in areas where awareness is very low by utilizing grass route level health workers already existing in community.

To minimize proportion of LBW babies, a multi-prong approach is needed:

- Public education and awareness on how to carry on a healthy pregnancy.
- Improve the health of the mother.
- Provide the adequate antenatal care.
- Detect high risk pregnancy early and make preparations.

REFERENCE

1. World Health Organization, International statistical classification of diseases and related health problems, tenth revision, World Health Organization, Geneva, 1992.
2. K. Park, Park's textbook of preventive and social medicine, 19th ed. 3. Department of Family Welfare, ministry of health and family welfare Government of India, National family health survey (NFHS -3).
4. Kramer M S. Determinants of LBW, Methodological assessment and meta analysis. WHO Bull, 1987; 65(5): 663,737
5. Joshi H.S. et al, Risk Factors for Low Birth Weight (LBW) Babies and its Medico-Legal Significance, J Indian Acad Forensic Med, 32(3)
6. Kramer, M.S., op. cit. 7. Barker, D.J.P. (ed.), Fetal and infant origins of disease, BMJ Books, London, 1992.
8. WHO Technical Consultation, 'Towards the development of a strategy for promoting optimal fetal growth', Report of a meeting (draft), World Health Organization, Geneva, 2004.
9. Anand Kiran, Garg B S. A study of factors affecting LBW, Indian Journal of Community Medicine. 2000; XXV (2): 57-61.
10. Mondal B. Risk factors for low birth weight in Nepali infants, Indian J Pediatr. 2000 Jul; 67(7):477-82.
11. Shyam ashtekar, et al. Analysis of birth weights of a rural hospital, IJCM Vol35/Issue2/April2010.
12. B.S. Deswal et al. A Study Of Risk Factors For Low Birth Weight, IJCM Year :1999 / Volume : 24/ Issue : 3/ Page : 127-131.