

A Study on Socio Demographic determinant of birth weight in Dimoria block of Kamrup District, Assam



Medical Science

KEYWORDS : Low birth weight, education, socio-economic status.

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ABSTRACT

Birth weight is universally one of the single most important determinants of survival and healthy growth and development of the newborn. In Assam study indicates the prevalence of low birth weight of 25.5%. Despite the profusion of studies over last few decades on the determinant of birth weight the conclusions are often controversial. With this rationale the present study has been undertaken to assess the Socio Demographic determinant of birth weight in Dimoria block of Assam. The total number of sample attempted to be studied, was worked out to be 257 pregnant women in her third trimester. It was observed that the number of low birth weight babies

were highest among general cast. Highly significant difference was also observed in type of family and its relation with birth weight. The percentage of low birth weight was highest among the social class III followed by class V. Significant relation of maternal education and birth weight was observed in this study.

INTRODUCTION

The birth weight of an infant, simple as it is to measure, is highly significant in two important aspects. In the first place, it is strongly conditioned by the health and nutritional status of the mother and in the second place, low birth weight is universally one of the single most important determinants of the chances of the newborn to survive and to experience healthy growth and development.

Globally, more than 20 million infants are born with low birth weight. The large number of factors that could theoretically influence birth weight indicates that each of them may have rather small individual impact.^[1] In Assam study indicates the prevalence of low birth weight of 25.5%, 13%, and 8.7%.^[2,3,4]

During past few decades, several intervention programmes including CSSM and RCH, have been launched all over the country to improve the health status of mother and children. But still the incidence of low birth weight is high in India.

In the developing world, low birth weight stems primarily from the mother's poor health and nutrition. Despite the profusion of studies over last few decades that have investigated the determinant of birth weight the conclusions are often controversial. The large number of factors that could theoretically influence birth weight indicates that each of them may have rather small individual impact.

Keeping all these in mind and realizing the need for community based data, the present study has been undertaken to assess the Socio Demographic determinant of birth weight in Dimoria block of Kamrup District, Assam

MATERIALS & METHODS:

Study design: Community based Cross sectional Study.

Study area: The present study has been undertaken in the Dimoria Development Block Kamrup District, Assam.

Study period: August 2011 to July 2012.

Study population: The study population comprised of pregnant women in her third trimester and new born within 48 hours of delivery.

Twin babies, stillbirth, maternal death during pregnancy and women residing for less than six month in the area were excluded from the study.

Sample size and Sampling design: In the Dimoria Block (study area), the population is 119584 (as per census). There are about 3289 pregnant women which are estimated as follows by taking the current birth rate of Assam as 25/1000 midyear population. (SRS 2010).

Expected pregnant women = Birth rate × population/1000.

= 25 × 119584 / 1000.

= 2989.6

= 2990 (rounded).

Add 10% = 2990 + 299 = 3289.

This population (pregnant women) will be a finite one and for calculating the sample size, correction factor for finite population is used.

$n = \frac{N}{1 + N(e)^2}$

Where: n = sample size

N = 3289

e = 6% (absolute error).

$n = \frac{3289}{1 + 3289(0.06)^2}$

= 256.95.

= 257 (rounded).

By this way total number of sample attempted to be studied, was worked out to be 257. To get this required sample size for the study, 13 villages were selected from 144 villages of Dimoria Block by simple random sampling technique. (Taking pregnant women is around 3% of each village population).

Data collection Tool: Data were collected in Pre designed,

pre tested, semi-structured schedule. Weighing machine (Edride), flexible plastic Measuring tape, and UNICEF spring balance also used in the process.

Data collection Technique: Data were collected in a Pre designed, pre tested, semi-structured schedule by

Interview and anthropometric measurement of the pregnant women which was done in the third trimester of pregnancy.

Weighing of the new born which was done either by the investigator herself within 48 hours or by the health worker within 48 hours or taken from the hospital record / discharge certificate in case of hospital delivery.

Relevant records available with the ANM, Health Assistant (female), ASHA and in Health centres.

Data analysis: The data collected was compiled, tabulated and subjected to statistical analysis wherever applicable. Statistical significance test like chi square test were employed where appropriate. Since birth weight depends on many factors and some of them are interrelated, a linear regression analysis (multiple linear regressions) was also used to assess the independent effect of some of these factors. The analysis was done in computer using MS excel package and SPSS. 11. 5 software.

Required Ethical permission was obtained beforehand

RESULT

It was observed in the study that the number of low birth weight babies found highest among general cast (40.00%) and lowest in SC (12.96%). These differences were statistically significant. It was also observed that highest number of low birth weight babies were found among Muslims (53.57%) followed by Christian (33.33%). This difference was statistically significant. There were 35.67% LBW babies in Joint Family whereas only 13.95% LBW babies were from nuclear family. Highly significant difference was also observed in type of family and its relation with birth weight. (P<0.001) (table 1)

Table 1: Distribution of birth weight in relation to some socio demographic factor

Cast	Birth weight (gms)				Total	P value*
	<2500		>2500			
	No	%	No	%		
ST	13	30.23	30	69.77	43 (16.73)	<0.05
SC	7	12.96	47	87.04	54 (21.01)	
OBC	27	28.42	68	71.58	95 (36.96)	
General	26	40.00	39	60.00	65 (25.29)	
Religion						<0.05
Hindu	56	25.11	167	74.89	223 (86.77)	
Muslim	15	53.57	13	46.43	28 (10.89)	
Christian	2	33.33	4	66.67	6(2.33)	
Type of family						<0.001
Joint	61	35.67	110	64.33	171 (66.54)	
nuclear	12	13.95	74	86.05	86 (33.46)	

*Chi square test done

Note: Numbers in parenthesis indicate column wise percentage

Table 2 : Distribution of birth weight in relation to socio economic status *

SES class	Birth weight (gms)				Total	P value**
	<2500		>2500			
	No	%	No	%		
I	0	0	0	0	0	<0.05
II	0	0	0	0	0	
III	4	40.00	6	60.00	10 (03.89)	
IV	34	23.61	110	76.39	144 (56.03)	
V	35	33.98	68	66.02	103 (40.08)	
Total	73	28.40	184	71.60	257 (100%)	

Note: Numbers in parenthesis indicate column wise percentage.

*Modified Kuppuswamy Classification

** Chi square test done

The percentage of low birth weight was highest (40.00%) among the social class (SES) III followed by SES V (33.98%) These differences were statistically significant (Table 2)

Table 3: Distribution of birth weight according to the literacy status & Occupation of mother

Literacy	Birth weight (gms)				Total	P value*
	<2500		>2500			
	No	%	No	%		
illiterate	13	52	12	48	25 (9.73)	<0.0001 df 6
Primary	20	37.04	34	62.96	54 (21.01)	
ME	15	44.12	19	55.88	34 (13.23)	
High School	20	19.42	83	80.58	103(40.08)	
HSLC	0	0	15	100	15 (5.84)	
HSSLC	5	62.50	3	37.50	8 (3.11)	
Graduate & above	0	0	18	100	18 (7.00)	>0.05 df 2
Occupation						
Housewife	73	29.32	176	70.68	249 (96.89)	
Daily wage earner	0		3	100	3 (1.17)	
Skilled worker	0		5	100	5 (1.94)	

*Chi square test done

Note: Numbers in parenthesis indicate column wise percentage

Table 3 indicate that out of total 25 illiterate mother 13 (52%) delivered low birth weight babies where as graduate and above mothers did not give birth of any LBW baby. Significant relation of maternal education and birth weight was observed in this study. This table also shows that majority of mothers (96.89%) were housewives followed by skilled worker who worked mainly in paddy field. It was observed from the table that 29.32% of house wives gave birth of LBW babies whereas not a single LBW babies found among daily wage earner and skilled worker.

DISCUSSIONS

Table 1 showed that the low birth weight babies found highest among general cast (40.00%) and lowest in SC (12.96%). It was also observed that highest number of low birth weight babies were found among Muslims (53.57%) followed by Christian (33.33%). This difference was statistically significant. Similar significant effect of maternal religion upon birth weight was observed by Dhall K, Bagga R^[5] similar observation was also reported in study done by Prakash B. Patel, Neha R^[6] Highly

significant difference was also observed in type of family and its relationship with birth weight. Pachuri S , Marwah SM, Rao NSN^[7] found significant association between type of family & birth weight . similar observation was also reported by Dhar &Shah ^[8]And Ojah J ^[2]

In table 2 it was observed that the highest number of LBW babies was found in socio economic class III followed by Class V. Similar significant association was found between socioeconomic status Class IV and Class V and birth weight of baby ($P < 0.05$) in the study conducted by M. S. Gururaj, Anitha Siddapa, A. G. Kulkarni, K. Rekha ^[9]

Table 3 shows the distribution of birth weight according to the literacy status & Occupation of mother. Here it was observed that in case of literacy status of the mother , a total of 52% illiterate mother gave birth of LBW baby where as all graduate and HSLC mother(100%) gave birth to normal birth weight baby. Significant relation of maternal education and birth weight was observed in this study. Similar significant relation were observed by Aurora ^[10],Sunderlal& Goomer^[11] and Joshi H. S. Subba S. H., Dabral S. B., Dwivedi. S. Kumar D. Singh.^[12] In case of maternal occupation and birth weight it was observed in the study that 29.32% of house wives gave birth of LBW babies whereas not a single LBW babies found among daily wage earner and skilled worker. This study shows that Occupation of the mother did not have significant association with birth weight. This could be possibly due to that most of the participants in this study were housewives. This type of observation was reported by Kandhasamy K, Singh Z. ^[13]. Pachuri S , Marwah SM,& Rao NSN^[7] in their study observed higher mean birth weight in women who were housewives than that of manual worker group.

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