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Original Research Article

Prevalence and correlates of low birth weight babies born in a tertiary care teaching hospital in Eastern India

Tanaya Paul[1], Kaustav Chakraborty[2]*, Nayan Sarkar[3], Moumita Chatterjee[4], Suman Kumar Roy[5]

[1]School of Management and Social Sciences, College of Paramedical and Allied Health Sciences, West Bengal University of Health Sciences (WBUHS), West Bengal, India
[2]Department of Psychiatry, [3]Department of Obstetrics and Gynaecology, [4]Department of Anatomy, [5]Department of Community and Family Medicine, College of Medicine and J.N.M. Hospital, WBUHS, Kalyani, Nadia, West Bengal, India

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***Correspondence:**
Dr. Kaustav Chakraborty,
E-mail: drkaustav2003@yahoo.co.in

ABSTRACT

Background: Low birth weight (LBW) is one of the long-standing birth outcomes amongst all adverse pregnancy outcomes, which have lasting influences in the later life span. The objective of the study was to determine the prevalence of LBW babies; to examine the correlation between maternal socio-demographic, lifestyle, obstetrics, and clinical factors with LBW; and to compare the above factors between mothers with low and normal birth weight babies.
Methods: All the pregnant women admitted for delivery in the inpatient Department of Gynaecology and Obstetrics and providing informed consent were interviewed with the help of the semi-structured questionnaire. The antenatal card and labour room log book were also scrutinized for relevant data.
Results: The prevalence of LBW and VLBW were 33.8% and 2.8% respectively. A significant positive correlation was found between strenuous working environment, duration of standing, consumption of alcohol and smoking in pregnancy, previous history of premature birth and LBW babies, high blood pressure and pre-eclampsia during pregnancy, total weight gain during pregnancy and gestational age at birth and LBW. Mothers of LBW and normal birth weight babies significantly differed in their age, total weight gain during pregnancy, religion, level of education, history of premature baby and LBW baby, high blood pressure and preeclampsia during pregnancy. In the regression model, there was also a significant positive linear relationship between LBW and strenuous work environment & gestational age at birth.
Conclusions: One third of the pregnant mothers delivered LBW child and various socio-demographic and clinical factors had significant correlation with LBW.

Keywords: Correlates, Low birth weight, Prevalence, Predictors

INTRODUCTION

The weight of the new born babies is not only the most important parameter reflecting the status of maternal health and nutrition, but it is also a universal predictor of neonatal morbidity and mortality. The current state of neonatal health in India is indeed dismal to state the least. Three neonates die every minute in India and every 4th baby born is low birth weight (LBW). The current neonatal mortality rate (NMR) is 22.7 per 1000 live birth accounts for nearly

two-thirds of all infant mortality and half of under- five child mortality. Over one third of all neonatal deaths occur on the first day of life, almost half within three days, and nearly three fourth in the first week.[1]

LBW is one of the long-standing birth outcomes amongst all adverse pregnancy outcomes, which have lasting influences in the later life span.[2-4] Infants born with LBW begin disadvantaged life and face extremely poor survival rates.[5] The accurate estimation of birth weight and measurement of magnitude of LBW is still lacking due to variability in the definition of LBW in different countries. Further, it is evident that many expectant mothers in developing countries still deliver at home without the assistance of skilled birth attendants and without the facilities to assess the health status of the newborn.[6,7]

World Health Organization (WHO) in the year 1992 defined LBW as birth weight less than 2500 grams (gms) irrespective of the gestational age; very LBW (VLBW) as birth weight 1500 gms or less and extremely LBW (ELBW) as birth weight 1000 gms or less.[8] LBW infants include two kinds of infants: first are those born before 37 weeks of gestation, known as pre-term babies. Their intrauterine growth may be normal, that is their weight, length, and development may be within normal limits for the duration of gestation. Second category includes those babies who are clearly the result of retarded intrauterine foetal growth, known as small- for-date (SFD) babies. These may be born at term or pre-term. They weigh less than 10th percentile for the gestational age.In studies done in India, various factors have been found to be associated with LBW e.g. rural background, low socio-economic status, illiteracy, age of mother, age at marriage, joint family set up, smoking and tobacco chewing, manual labour, parity, primipara, short stature, short birth interval, low body mass index, anaemia, hypertension during pregnancy, inadequate antenatal care, low haemoglobin level, so on and so forth.[9-20]

Table 1: Summary of Indian studies looking into the prevalence and correlates of low birth weight babies.

Author name and year of publication	Sample size	Prevalence of LBW (%)	Correlate of LBW
Sunilbala et al[9]	23031	6	Level of maternal education, low family income, age of the mother, primipara, anemia
Agarwal et al[10]	325	32.30	Illiteracy, rural area, socio-economic status, mothers aged <18 years, addicted to tobacco chewing and smoking, mothers with pre pregnancy weight was less than 40 kg, anemia
Krishnamurty et al[11]	210	30.30	Anemia, low socioeconomic status, short stature, short birth interval, low maternal age, low body mass index, and primiparity
Johnson et al[12]	1580	19.87	Mother's age, family income, education level, mother's weight
Dandekar et al[13]	300	11.67	Rural area, less than 6 kg weight gain during pregnancy and among those women with short stature
Patale et al[14]	149	29.53	Maternal education, socioeconomic status, parity, maternal weight gain during pregnancy, height of the mother
Paneru et al[15]	1299	19.30	Primigravida, hypertensive mothers
Dhar et al[16]	178	26.40	Birth interval, marriage age, manual labour, maternal smoking, and monthly family income
Kiran et al[17]	256	34.37	Primigravida, maternal education, stature, age at delivery, short inter pregnancy interval, inadequate antenatal care, and per capita income of family
Mondal[18]	448	21.53	maternal age, parity, gestation period, economic condition and maternal education were significantly related to the incidence of LBW
Kadam et al[19]	1300	34.70	Maternal age (<18 years and >35 years), low level of haemoglobin and the short birth interval (<2 years) were statistically associated with LBW
Dayanithi[20]	406	31.80	Joint families, ≤Rs. 2999/- monthly income, maternal illiteracy and house wives

The index study attempted to find out various correlates of LBW in pregnant women coming for institutional delivery. This study tried to encompass various parameters viz. socio-demographic, lifestyle, obstetrics and clinical in a single interview which could be expected to give a holistic idea behind the occurrence of the phenomenon called LBW. Very few studies from Eastern India have looked into all these factors in a single study.

The aims and objectives of the index study was to determine the prevalence of LBW babies born in the hospital; to examine the correlation between maternal socio-demographic, lifestyle, obstetrics and clinical factors with LBW and to compare the maternal socio-demographic, lifestyles, obstetrics, and clinical factors characteristics of mother with low and normal birth weight babies.

METHODS

Pregnant women admitted for delivery between 1st August 2018 and 31st August 2018 in the inpatient Department of Gynecology and Obstetrics of a tertiary care teaching hospital in Eastern India were screened before delivery of the newborn.

A cross sectional design was employed. Consecutive sampling was done. The patients were assessed only once at the time of intake into the study. Institutional Ethics Committee (IEC) approval was obtained.

Inclusion criteria

Pregnant women of all ages who were admitted in the hospital for delivery and provided informed consent were included in the study.

Exclusion criteria

Pregnant women who did not provide informed consent and who were not able to understand and converse in Bengali, Hindi or English were excluded from the study. Pregnant women who had diabetes, hypertension and dyslipidemia before they conceived were excluded from the study.

Sample size

Sample size was calculated using a sample size calculator.[21] From the review of literature it was found that the prevalence of LBW in various Indian studies ranged from 11.6% to 34.7%. The median of this range was 23.2%. Therefore, the expected P became 0.23. With a precision (d) of 0.05 and 95% level of confidence the sample size came out to be 273.

Description of procedure

Data collection was done over a one-month period using a semi structured questionnaire specifically designed for the purpose of this study and included variables like maternal socio-demographic, lifestyle, obstetrics, and clinical factors. Lifestyle factors were further explored under three domains- work, nutrition and risky behavior. The questions involving the lifestyle factors had some amount of subjectivity e.g. the patient was asked questions like 'if she had to stand for more than 5 hours for her work', 'had to do extensive bending', 'had to lift heavy weight' and 'whether she had domestic help'. If answer to all these questions were 'yes', then it qualified for 'strenuous work'. Also, regarding consumption of alcohol and smoking we had to rely on the patient's version. The questionnaire was pre-tested on 30 pregnant women. All the pregnant women admitted for delivery in the inpatient Department of Gynecology and Obstetrics of a tertiary teaching Hospital of Eastern India were approached and those who provided informed consent were interviewed with the help of the semi-structured questionnaire. Information was also obtained from the spouse of the patient where she could not answer all the questions. Answering by spouse was not required in most of the cases as most of the questions were objective in nature (which could be answered by the patient herself or could be obtained from medical records). Only questions regarding smoking habit and alcohol consumption pattern were verified from husband. The antenatal card was also scrutinized for relevant data. The interview took approximately 20-25 minutes. After delivery, baby's birth record (birth weight, health status, etc.) was obtained from the labour room log book and entered into the proforma. Baby with a birth weight of less than 2.5 kilograms and 1.5 kilograms was considered to be having LBW and very LBW respectively.[8]

Statistical analysis

Descriptive analysis was computed in terms of mean and standard deviation with range for continuous variables and frequency with percentage for ordinal and nominal variables. Correlations between the variables were assessed using Pearson's product moment and Spearman's rank order correlation.[22] Chi-square test and Independent sample T-test were used to compare the maternal demographic, socio-economic, obstetrics, and clinical characteristics of mother with low and normal birth weight babies.

To study the effect of various independent variables on LBW, binary logistic regression (Enter method) was used. The statistical model used the minimum probability of F (significance level <0.05) as cut-off for entry. The F-value is the mean square regression divided by the Mean Square Residual and indicates whether independent variables reliably predict the dependent variable.

Variables which do not fulfill this cut-off were not considered to be reliable predictors of the dependent variable in the statistical model and were hence not entered for further analysis. All analysis was done with the help of SPSS (Version 21) and p value ≤0.05 was considered statistically significant.[23]

RESULTS

Two hundred and eighty-one consenting pregnant women admitted for delivery were recruited in the study. The mean age of the sample was 24.12 ± 4.38 years. About more than three quarters of the sample belonged to Hindu religion (79%). Out of the total 281 pregnant women, majority were either were illiterate (40.2%), or had primary education (34.9%).

Majority of the sample were from rural area (59.4%) and were unemployed (80.1%). Maternal lifestyle profile is depicted in Table 2. It was observed that out of 281 subjects, 21.7% women did strenuous work during pregnancy period and 19.2% reported that their work usually involved standing over a long period. Three forth (74%) of the subjects reported that they lifted heavy loads while 39.1% reported that they engaged in extensive bending. Near about eight percent (8.2%) of the subjects reported that they consumed alcohol and 13.2% of the subjects smoked during pregnancy.

Obstetrics history of the subjects were also recorded. Among the 281 participants, 44 (15.7%) were primigravida. Among those who were multigravida, 12.5%. had given birth to premature baby, 17.1% to LBW babies while 4.6% had previously given birth to still born babies. Out of 237 multigravida who had ever given birth before, 19.9% experienced a miscarriage, with 33.5% experiencing it twice. Near about four-fifth of the subjects conceived within 3 years of giving birth to previous child (78.6%) and attended antenatal clinic (83.6%). Diabetes was reported in 6% and 7.1% was suffering from high blood pressure. Fifty-two percent of the participants were diagnosed suffering from anaemia during pregnancy while 15.3% suffered from UTI and 8.5% suffered from vaginal infection.

Medical record of the sample is depicted in Table 3. Mean weight of the subjects was 58.61±5.7 kgs, pre pregnancy weight was 48.86±5.0 kgs and mean weight gain during pregnancy was 9.65±2.27 kgs. The mean height of the sample was 157.04±2.64 cms. Out of 281 subjects, 96.8% births were singleton and multiple births were 3.2%. Among all the deliveries 33.8% were LBW and 2.8% were very LBW.

Spearman's rank correlation was computed to find out the correlation between LBW and socio-demographic variables, maternal lifestyle factors, obstetrics factors and medical factors.

A significant positive correlation was found between strenuous working environment, duration of standing, consumption of alcohol in pregnancy, smoking status, smoking during pregnancy, frequency of smoking during pregnancy, previous history of premature birth, previous history of LBW babies, high blood pressure during pregnancy, pre-eclampsia during pregnancy, total weight gain during pregnancy and gestational age at birth and LBW.

Table 2: Maternal life style profile (n=281).

Variables		N (%)/ Mean±S.D.
Strenuous working environment	Yes	61 (21.7)
	No	212 (75.4)
	Don't know	8 (2.8)
Prolonged standing	Yes	54 (19.2)
	No	12 (4.3)
	Not applicable	215 (76.5)
Domestic help in house	Yes	18 (6.4)
	No	263 (93.6)
Heavy lifting during pregnancy	Yes	208 (74)
	No	73 (26)
Extensive bending during pregnancy	Yes	110 (39.1)
	No	171 (60.9)
Causes of consuming meal less than three times	Lack of money	56 (19.9)
	Not applicable	225 (80.1)
Use of micronutrient supplement during pregnancy	Yes	232 (82.6)
	No	49 (17.4)
Type of micronutrient used	Folic acid and iron	204 (72.6)
	Folic acid and calcium	2 (0.7)
	Iron, folic acid and calcium	25 (8.9)
	Not applicable	50 (17.8)
Causes of not using micronutrient	Lack of knowledge about them	35 (12.5)
	Lack of access to them	4 (1.4)
	Prescribed but didn't take	10 (3.6)
	Not applicable	232 (82.6)
Consuming alcohol during pregnancy	Yes	23 (8.2)
	No	258 (91.8)
Frequency of drinking alcohol	Once/week	7 (2.5)
	2-3 times/week	5 (1.8)
	Not applicable	269 (95.7)
Smoking during pregnancy	Yes	37 (13.2)
	No	244 (86.8)
Frequency of smoking during pregnancy	Once	2 (0.7)
	Some months of pregnancy	35 (12.5)
	Not applicable	244 (86.8)
Type of fuel using	Fire wood	143 (50.9)
	Charcoal	68 (24.2)
	Stove	17 (6)
	Gas/Electricity	53 (18.9)

Table 3: Medical record of the sample (n=281).

Variables		N (%) / Mean±S.D.
Weight (in kgs)		58.61±5.70
Pre pregnancy weight (in kgs)		48.86±5.00
Total weight gain (in kgs)		9.65±2.27
Height (in cm)		157.04±2.64
Birth status of the mother	Single	272 (96.8)
	Multiple	9 (3.2)
Baby's status at birth	LBW	95 (33.8)
	Very LBW	8 (2.8)
	Normal birth weight	178 (63.3)
Baby's health status	Healthy	201 (71.5)
	Not healthy	80 (28.5)
Gestational age at birth (in weeks)		37.20±2.20

Table 4: Comparison between mothers of LBW and normal weight babies (n=281).

Variables		LBW		Significance (2 tailed)
		No	Yes	P value
Religion	Hindu	154	68	0.008*
	Muslim	30	29	
Marital status	Single	3	0	0.206
	Married	181	97	
Level of education	Illiterate	86	27	0.031*
	Primary grade (5th)	56	42	
	Secondary grade (10th)	22	13	
	High (12th)	15	13	
	Graduate	5	2	
Level of education of spouse	Illiterate	55	28	0.089
	Primary grade (5th)	31	26	
	Secondary grade (10th)	61	23	
	High (12th)	18	5	
	Graduate	19	15	
Occupation	Unemployed	148	77	0.903
	Self employed	18	8	
	Govt. employee	3	2	
	Private employee	15	10	
Occupation of spouse	Unemployed	2	0	0.554
	Self employed	117	68	
	Govt. employee	25	12	
	Private employee	40	17	
Area of residence	Village	45	28	0.46
	Rural	109	58	
	Slum	30	11	
Time of standing during work	1-2 hours	10	9	0.148
	3-4 hours	11	12	
	Above 4 hours	8	4	
	Not applicable	155	72	
Domestic help in house	Yes	13	5	0.534
	No	171	92	
Average no. of meal consume during pregnancy	2	34	22	0.252
	3	119	53	
	More than 3	31	22	

Continued.

Variables		LBW		Significance (2 tailed)
		No	Yes	P value
Type of micronutrient used	Iron and folic acid	138	66	0.384
	Folic acid and calcium	2	0	
	Iron, folic acid and calcium	15	10	
	Not applicable	29	21	
Drink alcohol during pregnancy	Yes	6	6	0.097
	No	5	7	
	Not applicable	173	84	
Frequency of consuming alcohol	Once/ week	4	3	0.426
	2-3times/week	2	3	
	Not applicable	178	91	
Smoke during pregnancy	Yes	9	28	0
	No	175	69	
Frequency of smoking during pregnancy	Once	0	2	0
	Some month of pregnancy	9	26	
	Not applicable	175	69	
Type of fuel used for cooking	Fire wood	95	48	0.658
	Charcoal	47	21	
	Stove	11	6	
	Gas/ electricity	31	22	
History of previous pregnancy	Yes	157	80	0.532
	No	27	17	
Number of previous pregnancy	Once	51	27	0.862
	Twice	61	33	
	More than three	45	20	
	Not applicable	27	17	
History of premature baby	Yes	13	22	0.001*
	No	144	61	
	Not applicable	27	14	
History of lbw baby	Yes	18	30	0.000*
	No	139	53	
	Not applicable	27	14	
History of stillborn baby	Yes	7	6	0.658
	No	149	76	
	Not applicable	28	15	
Age of previous child	<3yrs	144	77	0.101
	>3yrs	8	0	
	Not applicable	32	20	
History of miscarriage	Yes	34	21	0.307
	No	150	75	
	Not applicable	0	1	
Attend ANC clinic	Yes	159	76	0.082
	No	25	21	
Vaginal infection during pregnancy	Yes	18	6	0.305
	No	166	91	
Lung problem during pregnancy	Yes	14	4	0.257
	No	170	93	
Heart problem during pregnancy	Yes	1	1	0.644
	No	183	96	
Diabetes during pregnancy	Yes	7	90	0.551
	No	10	174	

Continued.

Variables		LBW		Significance (2 tailed)
		No	Yes	P value
High bp during pregnancy	Yes	9	11	0.042*
	No	175	86	
Preeclampsia during pregnancy	Yes	4	8	0.017*
	No	180	89	
Eclampsia during pregnancy	Yes	1	3	0.086
	No	183	94	
Anaemia during pregnancy	Yes	88	58	0.056
	No	95	39	
Vaginal bleeding during pregnancy	Yes	23	16	0.369
	No	161	81	
Low back pain during pregnancy	Yes	13	9	0.551
	No	171	88	
Pelvic pressure during pregnancy	Yes	2	0	0.303
	No	182	97	
Age in years		23.80±4.80	24.28 ±4.14	0.038*
Monthly income of spouse (rupees)		5874.22±1562.73	5552.71±1564.38	0.668
Weight (in kgs)		56.48±5.66	59.73±5.40	0.759
Pre pregnancy weight (in kgs)		47.64±4.69	49.50±5.05	0.317
Total weight gain during pregnancy		8.73±2.48	10.13±1.99	0.035*
Height (in cm)		156.96±2.40	157.09±2.74	0.26

Table 5: Regression model.

Model (constant)	Regression coefficient	Standard error	P value	Adjusted r –square (all independent variables taken together)
Level of education	-0.381	0.156	0.014*	0.463
Strenuous work environment	1.945	0.869	0.025*	
Gestational age at birth	0.56	0.091	0.000*	

Dependent variable: LBW yes/no; *p<0.05

A significant negative correlation was found between LBW and level of education. Mothers of LBW and normal birth weight babies significantly differed in their age, total weight gain during pregnancy, religion, level of education, history of premature baby, history of LBW baby, high blood pressure and preeclampsia during pregnancy (Table 4).

In the logistic regression model lbw was taken as dependent variable whereas, level of education, work environment, prolonged standing during pregnancy, duration of standing during pregnancy, consuming alcohol during pregnancy, smoking during pregnancy, frequency of smoking during pregnancy, previous birth of premature baby, previous birth of LBW baby, hypertension during pregnancy, preeclampsia during pregnancy, total weight gain during pregnancy, and gestational age at birth were taken as independent variables. Using the enter method, a significant model emerged (F5, 44=26.03, p<0.05) (Table 5). Adjusted R square was 0.463. There was a significant negative linear relationship between LBW and educational status of the mother. There was also a significant positive linear relationship between LBW and strenuous work environment and gestational age at birth. This model accounted for 46.3% of variance in the occurrence of LBW.

DISCUSSION

LBW is considered to be an indicator not only of the health and nutritional status of the pregnant women but also of the social development of the population of the country. Index study was conducted to identify the risk factors associated with LBW babies and to compare the maternal socio-demographic, lifestyle, obstetrics, and medical factors of mothers with low and normal birth weight babies.

Sociodemographic characteristic of the sample

In the present study, the mean age of the pregnant women was 24.12±4.38 years. These finding was consistent with several Indian studies.[24,25] Most of the pregnant women (79%) were Hindus. The predominance of Hindus in our sample could be understood from the perspective of population which is catered by our hospital. This finding is similar to other studies conducted in West Bengal.[26-30] In index study the proportion of the pregnant women who were coming from rural areas (59.4%) was lower compared to other studies.[31]

In index study, majority (80.1%) of the women were unemployed. This result was consistent with the studies conducted at Pune and Dehradun centre where majority (90%) of the subjects were housewives.[19,32] In present study maternal education level was correlated the LBW babies. Similar result was found in a study from Purulia, West Bengal.[29]

Maternal lifestyle factors

The majority (74%) of the subjects in index study were working in a strenuous environment which involved heavy weight lifting and prolonged standing. This finding was similar to earlier studies where the proportion of LBW was maximum in mothers who were laborers by occupation.[17,18] In present study, 82.6% of mothers were using micronutrients supplements during pregnancy, out of which 72.6% consumed the combination of iron and folic acid tablets. Amongst those who did not take micronutrient supplements, the possible reason was lack of awareness among the mothers. In this study, 8.2% subjects consumed alcohol and 13.2% women smoked during pregnancy. In many previous studies, it was found that tobacco smoking during pregnancy was related with the LBW of the babies.[26,28] In index study, a significant positive correlation was found between smoking and consuming alcohol during pregnancy and having LBW baby.

Obstetrics factors

In this study, 84.3% of the subjects were multigravida, out of which 63.3% women had previous term pregnancy, and 17.1% subjects gave birth to LBW babies in previous pregnancy. There was another study done by Dhar et al. which found that multigravida mothers had more LBW babies.[16] In contrast to this finding, many previous studies showed that primiparity is a significant factor related to LBW babies.[11,24,26,27] In index study, it was found that giving birth to a premature baby and/or LBW by mothers in previous pregnancy had significant positive correlation with having a LBW in current pregnancy. Similar result was found in previous a study from Dehradun.[25] About 83.6% of the subjects attended antenatal clinic in index study. Earlier studies showed that, less attendance to antenatal clinic was significantly correlated to LBW babies.[25,28,30] In the present study, high blood pressure and preeclampsia during pregnancy were significantly correlated to LBW babies. Findings of the index study corroborated with similar studies conducted at the national and international level i.e, mothers with hypertensive disorders during pregnancy carried more than double fold risk for delivering LBW consistently.[15]

Medical record of the sample

In index study, the mean weight and height of the pregnant women in index study were not significantly correlated with LBW. In this study, the total weight gain of the mothers during pregnancy was 9.65±2.27 kgs and it had significant positive correlation with LBW. Similar finding was seen in earlier studies where maternal height, weight and total weight gain had significant correlation with LBW babies.[15,27] On an average, a pregnant woman should gain 11kgs weight during pregnancy.[33] In index study, mothers of LBW babies had a mean total weight gain of 8.73±2.48 kgs. The possible causes behind this might be lack of awareness among the mothers and properly utilizing the antenatal services provided by the hospital. In index study, 36.6% of the new-born babies were either LBW or very LBW. In various studies conducted in Indian subcontinent, the prevalence of LBW ranged from 13.8% to 34.4% which was in keeping with the findings of the index study.[9-20]

Correlates of low birth weight

In index study, a significance positive correlation was found between strenuous working environment, duration of standing, consumption of alcohol in pregnancy, smoking status, smoking during pregnancy, frequency of smoking during pregnancy, previous history of premature birth, previous history of LBW babies, high blood pressure during pregnancy, pre-eclampsia during pregnancy, total weight gain during pregnancy and gestational age at birth and LBW. In studies done in India, various factors have been found to be associated with LBW e.g. rural background, low socio-economic status, illiteracy, age of mother, age at marriage, joint family set up, smoking and tobacco chewing, manual labour, parity, primipara, short stature, short birth interval, low body mass index, anaemia, hypertension during pregnancy, inadequate antenatal care, low hemoglobin level, so on and so forth.[9-20] In this context, findings from index study added to the already existing knowledge and highlighted the role of alcohol consumption, weight gain during pregnancy, previous history of premature birth and LBW babies, preeclampsia during pregnancy, and gestational age at birth as the predictive factors of LBW.

Alcohol and tobacco consumption are the modern lifestyle diseases and albeit a small proportion of women in index study indulged in such activity, the emergence of correlation of these factors with LBW is a bad omen for the society in general. Multigravida women having obstetrics history of LBW baby and premature delivery in earlier pregnancies should be given extra care and should be asked to take extra precautions to prevent delivering LBW baby in index pregnancy. High BP and preeclampsia during pregnancy should be managed aggressively to avoid the LBW baby. Weight gain during pregnancy also emerged as another significant factor which underscores the role of maternal nutrition which would help her to gain weight.

In logistic regression model, there was significant positive linear relationship between LBW and strenuous work environment and gestational age at birth. This model accounted for 46.3% of variance in the occurrence of LBW.

Mothers of LBW and normal birth weight babies significantly differed in their age, total weight gain during pregnancy, religion, level of education, history of premature baby, history of LBW baby, high blood pressure and preeclampsia during pregnancy. Higher prevalence of LBW in Muslim community and in mothers with lower educational status is another major concern form community health perspective. As many government reports suggest, Muslims are underprivileged and lesser educated compared to the majority community in our country. Maternal health care measures should take these religions specific and education specific factors into consideration while making health, education and economic policies.

Limitations

There were certain limitations of index study. A semi-structured proforma was used to interview the patient and care-giver. To explore maternal lifestyle factors a validated lifestyle questionnaire could have been used. The sample size was small and drawn from department of Gynaecology and Obstetrics of a tertiary care centre which is more likely to cater complicated and referred cases from peripheral hospitals. Therefore, the result of index study cannot be generalised to another set-up.

CONCLUSION

The index study made a comprehensive attempt at looking into the correlates of LBW and compared various maternal socio-demographic, lifestyle, obstetrics and medical factors among mothers with low and normal birth weight babies. The study threw some insight into the possible predictors of LBW in this particular geographical region. Near about one third of the babies born were either LBW or VLBW. This is a matter of great concern from public health perspective. The correlates of LBW in our study suggest that, public health policies should be geared towards emphasizing the need to abstain from smoking and alcohol consumption during pregnancy, giving special medical care to mothers with bad obstetrics history, aggressive management of hypertension and preeclampsia during pregnancy; reducing the burden of strenuous work and focus on maternal nutrition so that they can gain desired weight during pregnancy. Women should be educated and encouraged for regular ANC check-ups, which augments the detection of these risk factors at the earliest to improve the weight of a new-born.

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