ORIGINAL RESEARCH

Proportion of Low Birth Weight Babies delivered at a tertiary care hospital and sociodemographic and obstetric profile of mother of Low birth weight babies

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ABSTRACT

Introduction: This hospital based descriptive observational study was conducted to find out the proportion of low birth weight babies in institutional deliveries and to identify socio demographic & obstetric profile of mothers of Low birth weight babies. **Methodology:** This study was conducted since 1 September 2014 to 31 August 2015 in Department of Obstetrics & Gynaecology, Mahila Chikitsalaya Sanganeri Gate & under Supervision of PHOD, Department of Community Medicine, Sawai Man Singh Medical College and attached Hospitals, Jaipur. **Results:** Among 900 live birth observed during study period, 175 babies were LBW. So the proportion of LBW was 19.44%. Average Birth weight of LBW was 1910.10 ± 420.0 (gm). Majority (62.29%) of babies belonged to mothers of age 21-25 years and maternal height >145 cm (88%) and Hindu religion (80.57%). Most (64.57%) of the mothers of LBW babies were from either General or OBC caste. Majority LBW babies were born to mothers who were residing in rural area (61.14%) and living in joint family (88.57%). 44.57% LBW babies were born to families where family heads were illiterate. 42.86% mothers of LBW babies were educated up to Primary-secondary level and maximum 38.29% mothers belonged to SES –III. Maximum 57.14% LBW babies belonged to mothers with parity 1. 18.86% had bad obstetric history, 3.43% had habit of tobacco chewing and 29.71 had passive smoking. In 42.85% mothers, time since last pregnancy was 2-3 years. 65.71% had gestational age <37 weeks. 65.14% mothers took >2 rest and sleep. Diet intake was same as before in 82.29%. **Conclusion:** Availability and utilization of comprehensive Obstetric care should be ensured through more community participation and involvement of NGOs.

INTRODUCTION

Low birth weight (LBW) is considered as sensitive index of nation's health[1] and one of the important public health problems in developing countries. Half of the prenatal death and 1/3rd of all infant deaths attribute to LBW[2]. LBW may lead to malnutrition, growth retardation, infection, increased infant mortality and morbidity,poor developmental status with congenital anomalies cognitive deficits, motor delays, cerebral palsy, and other behavioral and psychological problems .[3]

According to W.H.O "All new born with birth weight less than 2500gm (≤2499g) are considered as Low Birth Weight babies (LBW's)[4], the measurement being taken preferably within first hour life. LBW infants are classified as very low birth weight (VLBW) if their birth weight is <1.5 kg, and as extremely low birth weight (ELBW) if their birth weight is <1 kg.Overall, about 15% to 20% of all births worldwide are LBW, representing more than 20 million births a year.[5] In India, of the 26 million borne very year, 8 million are LBW infants i.e. around 40% of the global burden of LBW infants. Nearly three fourth of all neonatal deaths and half of infant deaths occur among LBW infants.[6]

Worldwide studies have shown that 2/3rd of low birth weight and neonatal mortality rates are related to maternal factors like age, socio economic status,

literacy level, pre pregnancy weight, maternal age, maternal education, gestational weight gain, tobacco chewing, calorie intake during pregnancy, maternal height, socio economic conditions, general morbidity, birth interval, strenuous maternal work, parity, sexual activity during pregnancy, urinary tract infection, first antenatal visit, number of antenatal visits and quality of antenatal care etc.[7]

With improvement in health services, though there is reduction in infant mortality in India by about fifty percent during the past century, the incidence of low birth weight has not changed much[8].As a public health priority and the importance to prevent the occurrence of low birth weight infants, this study aims to identify proportion of low birth weight infants among live births delivered at Mahila Chikitsalayaand to find out sociodemographic and obstetric profile of mothers of LBW babies in SMS Medical College attached hospital, Mahila Chikitsalaya Sanganeri Gate,Jaipur.

MATERIAL AND METHODS

This Hospital based descriptive observational study was conducted in Mahila Chikitsalaya, Jaipur from 1st September 2014 to 31stAugust 2015 among Live newborn aged < 24 hours and of weight less than 2500 grams delivered at Mahila Chikatsalaya, Jaipur.Sample size was calculated at 95% confidence level expecting prevalence of LBW 23.8% in live births as per seed article. At the precision (allowable absolute error) of 5% in prevalence of LBW among live births, minimum 279 live births were required as sample size. To enhance the precision and power of study, total 900 live births were included in the study as final sample size.

INCLUSION CRITERIA

Eligible live births occurring in study period at Mahila Chikitasalaya.

EXCLUSION CRITERIA

Still Birth, Babies whose parents / guardian won't give consent.It was decided to attend all eligible live births of one randomly selected week day, will be included in the study. So all eligible live births of 52 days of study year were included in the study. In case of multiple gestation it was decided to include low birth weight baby, if any,in the sample as study group. In case of ≥2 low birth weight babies in multiple gestation, baby with lower birth weight was included. In case of ≥2 normal birth weight babies in multiple gestation baby with higher weight was included in the study group. So only one baby from each pregnancy was included.

Low birth weight was defined as a weight of less than 2500 g (up to and including 2499 g) irrespective of the gestational age. In present study birth weight: ≥2.5kg was considered Normal, while<2.5Kg as Low birth weight.

PLAN OF ACTION

Approval of the study was taken from the Research review board of SMS Medical College Jaipur and prior permission for data collection was obtained from Principal and Controller, PHOD-PSM, SMS Medical college, Jaipur and Superintendent of Mahila Chikitsalaya, attached to SMS Medical College, Jaipur. After taking informed consent from all eligible study participants, detail history and socio-demographic information was taken by the investigator himself including Birth weight of the baby with the following study variables Maternal age, education and occupation, religion, caste, type of family, type of residence, father/ family head education, socioeconomic status, mothers age at first conception.Details of findings mentioned in the ANC card and patients' admission file was collected where ever it was available and study subject and their family members were questioned to obtain lacking information. All the information thus collected was recorded on a Predesigned, semi-structured study Performa to eliminate recording bias. Data obtained from study Performa were entered in MS Excel and subjected for statistical analysis.Quantitative data were expressed as Mean and standard deviation and qualitative data was expressed as proportion.

OBSERVATIONS

Among 900 live birth observed during study period (from September 2014 to August 2015), 175 babies were LBW. So the proportion of LBW in this study was 19.44%. Average Birth weight of LBW was 1910.10 ± 420.0 (gm).150 (86%) newborn babies had weight between <2500gm - ≥1500gms whereas 3 (2%) had weight less than 1000gm. [Graph-1]

Graph-1: Distribution according to categories of LBW

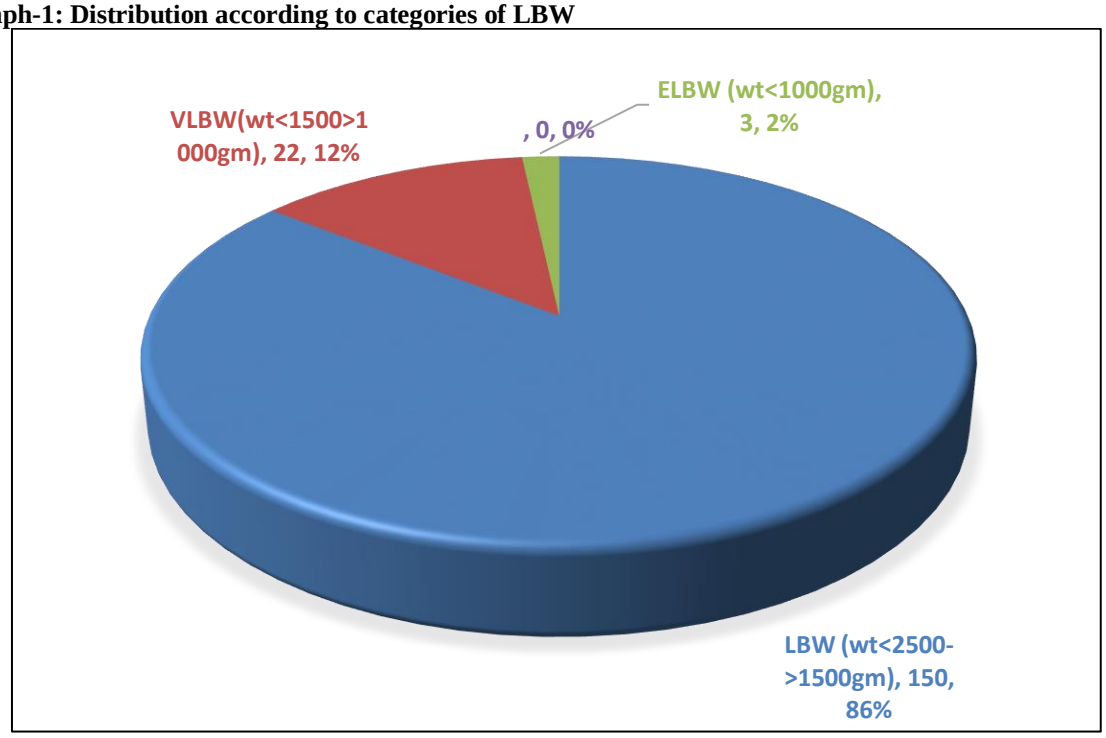

Table-1: Socio Demographic profile of mothers of LBW babies

Socio Demographic factors	LBW (N=175)	
	N	(%)
Maternal Age Group (Years)		
≤20	33	18.86%
21-25	109	62.29%
26-30	27	15.43%
31-35	4	2.29%
>35	2	1.14%
Maternal height(in Cms)		
≤145	21	12%
>145	154	88%
Religion		
Hindu	141	80.57%
Muslim	34	19.43%
Caste		
GEN	56	32.00%
OBC	57	32.57%
SC	36	20.57%
ST	26	14.86%
Residence		
Rural	107	61.14%
Urban	68	38.86%
Type of family		
Joint	155	88.57%
Nuclear	18	10.29%
3-Gen	2	1.14%
Education Of Family Head		
Illiterate	78	44.57%
Primary-secondary	67	38.29%
Sr. secondary -graduate	28	16.00%
Postgraduate &above	2	1.14%
Education Of Mother		
Illiterate	71	40.57%

Primary-secondary	75	42.86%
Sr. secondary -graduate	26	14.86%
Postgraduate &above	3	1.71%
Socioeconomic status		
Class I	12	6.86%
Class II	57	32.57%
Class III	67	38.29%
Class IV	38	21.71%
Class V	1	0.57%
Total	**175**	**100%**

In this study, majority (62.29%) of babies belonged to mothers of age 21-25 years followed by ≤20 years (18.86%) and 26-30 years (15.43%). Majority belonged to maternal age >145 cm (88%) and Hindu religion (80.57%). Most (64.57%) of the mothers of LBW babies were from either General or OBC caste. 20.57% belonged to SC and 14.86% to ST categories. Majority LBW babies were born to mothers who were residing in rural area (61.14%) and living in joint family (88.57%) whereas 10.29% mothers lived in nuclear family & 1.14% belonged to 3rd Generation family. 44.57% LBW babies were born to families where family heads were illiterate followed by Primary-secondary (38.29%), Sr. secondary –graduate (16%) Only 1.14% LBW babies family heads were Postgraduate &above. 42.86% mothers of LBW babies were educated up to Primary-secondary level, followed by Illiterate (40.57%), Sr. secondary – graduate (14.86%) and Postgraduate & above (1.71%) In LBW group 38.29% mothers belonged to SES –III, followed by SES –II (32.57%), SES-IV (21.71%), SES –I (6.86%) and SES –V (0.57%). [Table-1]

Table-2: Obstetric profile of mothers of LBW babies

Obstetric factors	LBW (N=175)	
	N	(%)
Parity		
1	100	57.14
2	39	22.29
3	24	13.71
>3	12	6.86
Bad obstetric history		
Yes	33	18.86%
No	142	81.14%
Time since last pregnancy (in years)		
≤2	23	29.87
2.0-3.0	33	42.85
≥3	21	27.28
Gestational Age (weeks)		
<37	115	65.71
≥37	60	34.29
Rest & Sleep during day time (in hours)		
≤2 rest and sleep	61	34.86
>2 rest and sleep	114	65.14
Tobacco chewing		
Yes	6	3.43
No	169	96.57
Passive smoking		
Yes	52	29.71
No	123	70.29
Diet intake in pregnancy		
Increased	23	13.14
Same As Before	144	82.29
Decreased	8	4.57

Maximum 57.14% LBW babies belonged to mothers with parity 1 followed by 2 (22.29%), 3 (13.71%) and >3 (6.86%%). 18.86% had bad obstetric history, 3.43% had habit of tobacco chewing and 29.71 had passive smoking. In 42.85% mothers, time since last pregnancy was 2-3 years followed by ≤2 (29.87%) and ≥3 (27.28%). 65.71% had gestational age <37 weeks.65.14% mothers took >2 rest and sleep. Diet intake was same as before in 82.29%. It was increased in 13.14% and decreased in 4.57%. [Table-2]

DISCUSSION

This study was conducted to estimate the proportion of LBW babies and to identify socio-demographic and obstetric profile of mothers of LBW babies.Proportion of LBW in this study was 19.44% similar to the study of Sharma et al[8](19.1%) and Joseph J et al[9](19.87%).However, Mumbare SS et al[10] found slightly higher (26.7%) and Dandekar RH et al[11] found lower (11.67%) LBW babies in their studies. This difference may be due to difference in socio-cultural practices of study population regarding marriage and child birth.

In present study, Maximum mothers (62.29%) were in the age-group of 21-25 years similar to study of Dasgupta A et al[12] (72.0%). 18.86% mothers had age ≤20 years similar to the study of DeshpandeJD et al[13](15.5%), Joseph J et al[9](16.8%) andDasgupta A et al[12](24.4%), Kader M et al[14](26.8%).12%mothers in our study were of height ≤145 cm which is almost similar to studies of Kader M et al[14] (10.1%),Deshpande JD et al[13] (14.0%).20.57% LBW babies were of SC category in accordance with study of Kader M et al[14](23.8%) &Bhattachariya H et al[15](25.6%).

Majority mothers belonged to rural area (61.14%) similar to study of Jain JB et al[16](66.6%).In present study, maximum (88.57%) mothers belonged to joint family similar to the studies of Paliwal A et al[17] (70.23%),and Jain JB et al[16](61.5%).However, contrary to present study, Jha SK et al[18]& Choudhary AK et al[19] found lower i.e. 31.41% & 23.3% respectively, LBW babies in joint family in their studies.In present study maximum LBW babies (40.57%) were born to illiterate mothers which is in accordance to studies of Choudhary AK et al[19](42.47%),&Jain JB et al[16] (58.80%).Maximum LBW babies (60%) were in socio-economic class III &IV which is corroborative with study of Jain JB et al[16](56%).

Maximum (57%) mothers were of first parity similar to study of Paliwal A et al[17] (53%), however studies of Deshpande JD et al[13] (35.5%), Jain JB et al[16] (27.4%) found other parity orders contributing maximally among LBW births. The difference may be due to other confounding factors like early age of marriage and selection bias of study population for particular hospital settings.18.86% mothers had bad obstetric historysimilar to studies of Deshpande JD et al[13](16.5%)Joseph J et al[9](20.5%).

In present study, 34.86%mothers took rest & sleep of ≤2hours in day time similar to study of Biswas Ret al[20](25.0%).In this study, 29.87% mothers having ≤2 years of spacing similar to studies of Joseph J et al[9] (35.7%), Deswal et al[21](40%). 65.71% LBW babies were preterm (<37wks) similar to studies of Joseph Jet al[9] (74.17%), Paliwal A et al[17](76%), Dasgupta A et al[12](67%).Only 13.14% mothers of LBW babies showed adequate/increased dietary intake during pregnancy which is almost similar to study of Dasgupta A et al[12](16.43%).Findings of present study emphasizes the need for improving the Ante natal care services, and skilled management of high risk pregnancies, better obstetric care of mother and complication management by experts.

CONCLUSION AND RECOMMENDATIONS

Overall mothers should be vigilant for their health status in whole pregnancy period.Availability and utilization of comprehensive Obstetric care should be ensured through more community participation and involvement of NGOs.Community leaders and grass root level health care health workers should be sensitized to ensure early registration of pregnant women and ensure primary workup and regular monitoring during pregnancy. Counselling sessions and IEC activities to be organised for sensitization of community about high risk situations of pregnant mothers.

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