

# A POST-COUNSELLING STUDY ON THE ROLE OF THE COMMUNITY PHARMACIST IN PREDICTION AND PREVENTION OF RISK FACTOR OF LOW BIRTH WEIGHT IN A RURAL AREA OF GUNTUR DISTRICT (ANDHRA PRADESH)

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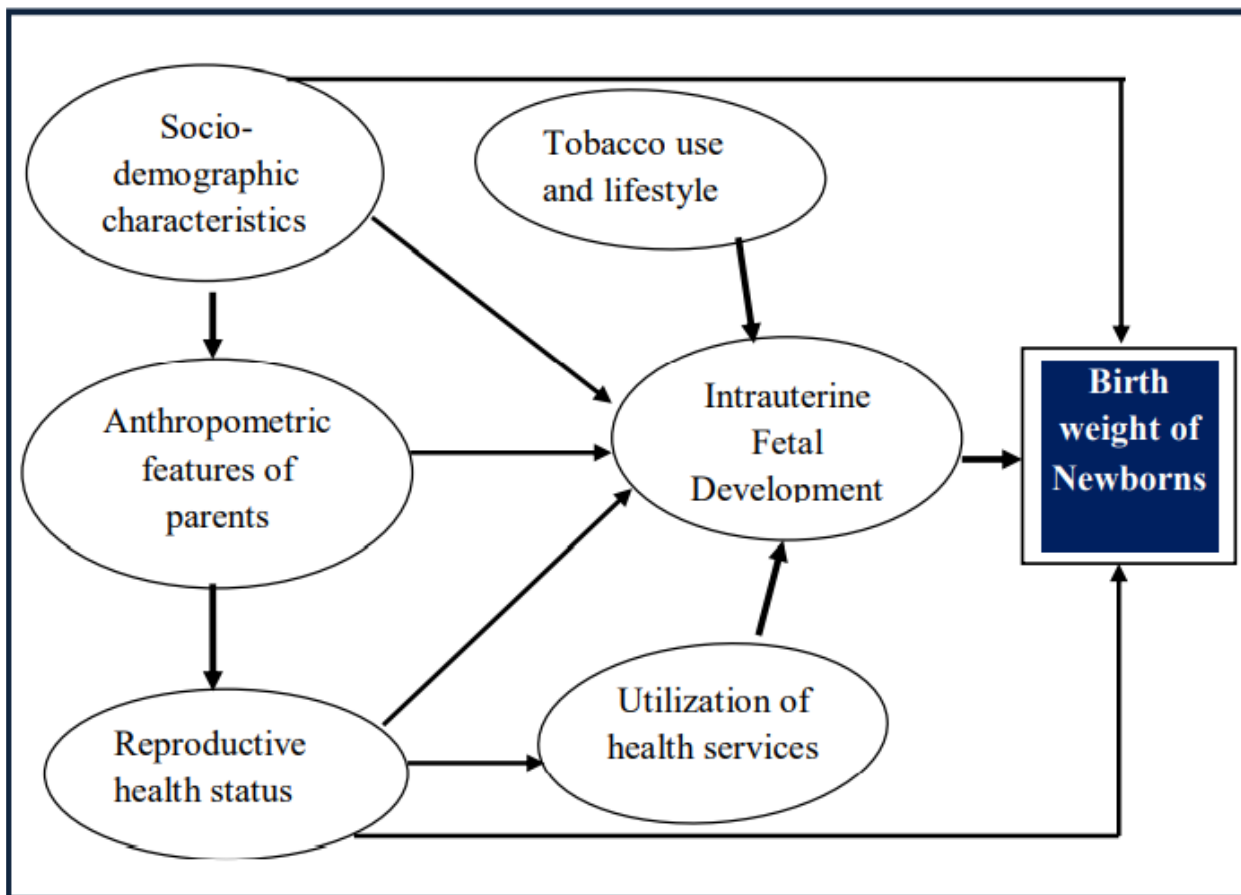
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## ABSTRACT:

Low birth weight is one of the long standing birth outcomes amongst all adverse pregnancy outcomes, which have lasting influences in the later life span. Many pregnancies terminate into adverse outcomes such as pregnancy loss, intrauterine fetal death, Low Birth Weight (LBW) and the anomalous births. India is one of the countries in the World that consistently reports huge burden of adverse pregnancy outcomes. The objective of the study was to identify the predictors of low birth weight amongst the babies born in rural areas of Guntur district and to assess the individual and combined effects of socio-demographic, parental anthropometric, obstetric and reproductive health related factors, health service use during pregnancy, maternal nutrition status and behavioural predictors on the birth weight of new-borns.

**KEYWORDS:** Low birth weight, predictors, anthropometric, intrauterine fetal death.

**INTRODUCTION:** Low birth weight in newborn is the major reason for neonatal deaths resulting in severe short-term and long-term effects on babies [1]. Therefore, both the extremes of birth weight (LBW and macrosomia) are a matter of clinical and public health concern worldwide and the LBW is an even more serious issue in India. LBW babies can be either preterm LBW or Small for Gestational Age (SGA). Preterm LBW babies have normal growth potential for gestational age (10th – 90th percentile) whereas SGA commonly have the birth weight below 10th percentile or less than two standard deviations for their gestational age. Babies who have low weight at birth are prone to growth retardation during childhood period and face delay in the developmental milestones. These LBW babies are at risk of obesity, diabetes, hypertension, metabolic disorders and increased susceptibility to the infection in the adulthood or later in life [2]. Low birth weight is an outcome of detrimental effects of multiple factors. Kramer has identified 43 risk factors of LBW which he has grouped into seven categories like genetic and constitutional factors, maternal nutrition during pregnancy, demographic and psychosocial factors, obstetric factors, maternal morbidity during pregnancy, environmental and behavioral factors; and low utilization of antenatal services [3]. On the other hand, Sachdev argued that more than 71 factors are known to have correlation with the birth weight [1]. Large number of studies has attempted to establish the association between potential risk factors of LBW, its magnitude and consequences at different territory and across the globe; however, a small number of studies have reported deterministic effects of multiple predictors on birth weight [4, 5].



**METHODOLOGY:** It was a prospective observational study that was conducted in the rural area of the Guntur District. The post-counseling study was conducted from February 2021 to May 2021.

**Tools of data collection:**

**Structured and pretested questionnaire:** It was used to collect information on sociodemographic and parental anthropometric features; obstetrics and reproductive history, health service utilization during pregnancy; and maternal nutritional status during pregnancy. The questionnaire had three major parts:

**Part I:** It was designed to collect the non-changeable parameters of the pregnant mothers. This information was collected at the OPD at the time of enrollment of pregnant women.

**Part II:** It was designed to collect information regarding dietary pattern of the mothers. It also included some of the information pertaining to her husband such as height and blood group.

**Part III:** This was the follow up questionnaire. It was used for the follow up of cases during pregnancy and finally to record the birth weight after delivery. This part of the questionnaire also included the information related to Iron and Folic Acid (IFA) consumption and the calcium intake during pregnancy.

**Techniques of data collection:**

Data was collected by study personnel by face to face interview with pregnant women in the OPD of Obstetrics and Gynecology at a convenient and confidential place. The data was also obtained during the follow up visits. Birth weight was measured within half an hour of delivery. Health profile of the pregnant women was recorded from the patient case sheet and investigation reports.

**Data management and analysis**

Collected data was managed carefully by taking into consideration of the data safety and completeness. All the measurements were taken in standard units. Data was entered into Statistical Package for Social Sciences (SPSS-20 version) software. Necessary data transformations were made for further analysis. Data has been summarized, presented and inferred using appropriate statistical tests.

**Statistical analysis:** Frequency distribution and the variation in the data were observed by calculating percentage, mean, median, standard deviation, range, quartiles. Association between birth weight and several independent predictors like sociodemographic and parental anthropometric features; reproductive health, health service use during pregnancy, maternal nutritional status during pregnancy and behavioral factors was established using bivariate and multivariate analysis. In the bivariate analysis, Chi-square test, independent students’ t test and correlation coefficients (Pearson’s and Spearman’s correlation coefficients) were applied. Multivariate linear regression analysis was performed to estimate the birth weight and to find out the influence of the several predictors of birth weight. P value <0.05 was considered significant.

**Post counseling study:** After getting the predictors and their values, from the first Study, we have followed up 100 pregnant women by distributing leaflets, and giving Counseling on identified predictors of LBW. The following parameters were identified and collected the details form subjects (N=100)

Age	Social History(Alcohol, tobacco)
Weight	Dietary habit
Height	Indoor air pollution
Residence	Sleep during pregnancy
Religion	Hemoglobin
Educational status	Surgical history
Occupation	Age at marriage
Marital relation	History of bad pregnancy outcomes

**RESULTS:** In the post-counseling study 100 pregnant women were selected in the 20th week and awareness was done. Hence, the data was analyzed in this study and the results were as shown.

**Table 1** shows 36(50%) pregnant women were weighing 50-60 Kilograms (Kgs), 30(30%) had 40-50Kgs and 26(26%) had 60-70 Kgs weight. Eight (8%) pregnant women had >70Kgs.

**Table 2** shows the weight of participant’s husbands, 40(40%) had weight between 60-70kgs, 26(26%) had weight >70kgs and between 50-60kgs. 8(8%) had weight ≤50Kgs.

**Table 3** shows a total of 46(46%) pregnant women had total weight gain 4-6Kgs during pregnancy; 40(40%) had ≤4 Kgs, 12(12%) had 6-8Kgs and 2(2%) had >8Kgs weight gain during pregnancy.

**Table 4** shows sixty two (62%) of the pregnant women had normal hemoglobin level. 24 (24%) of the pregnant women had moderate anemia and 14(14%) had mild anemia.

**Table 5** shows 79(79%) pregnant women were non-vegetarians and rest of them 21(21%) were vegetarians.

**Table 6** shows Out of 34 multigravida pregnant women, 22(64.7%) had the history of delivery by cesarean section, 2(6%) had history of abortion and 7(20.5%) delivered LBW babies in the preceding childbirth. Similarly, 3(8.8%) pregnant women had delivered preterm births.

**Table 7** shows eighty three (83%) newborns had normal birth weight i.e. 2500-3999gms and 10% newborns had macrosomic birth weight (≥4000gms). Only 7% newborns had Low Birth Weight.

**Table 8** shows seventy two (72%) were vaginal births and twenty eight (28%) were born by cesarean sections and female newborns (51%) were slightly more than the counterpart male babies (49%). (2%) newborns were preterm (<37 weeks of gestation) births.

**Table 9** shows representation of Improvement of modifiable factors in between Pre and Postcounseling pregnant women.

**DISCUSSION:** From multivariate linear regression analysis factors were identified which plays a role in the low birth weight. Based on the results of pre-counseling study, we have prepared the leaflet and distributed among the 100 pregnant women and follow-up was done i.e. counseling and interaction throughout their pregnancy through whatsapp /face-face interview. The following were the non-modifiable factors:

- Maternal age and height
- Paternal age and height
- Economic status
- Occupation
- Age at marriage

The following were the modifiable factors and also the outcome of our counseling and the interaction.

- Maternal weight
- Paternal weight
- Weight gain during pregnancy
- Hemoglobin level
- Diet
- Sleep
- Type of fuel
- Social history
- Surgical history
- New born weight

In **post-counseling study**, Out of 100 pregnant women, majority 46(46%) were 20-24 years old. Thirty two (32%) were 25-29 years and 16(16%) were adolescent pregnancies. A total of 4(4%) pregnant women were 30-34 years and only two percent of them were  $\geq 35$  years old. Forty-two (42%) of the pregnant women had the height of 150-155 centimeters (cms) and 28(28%) were of 155-160cms. Eighteen (18%) measured 145-150cms in height, 10(10%) of the pregnant women had height of  $>160$ cms and 2(2%) had  $\leq 145$  cms. Out of 100 women 48(48%) had 18.5-23kgs/m<sup>2</sup> normal weight and 34(34%) had 23-27.5kgs/m<sup>2</sup> pre-obesity. 16(16%) had  $<18.5$ kgs/m<sup>2</sup> underweight and only 2(2%) had  $>27.5$ kgs/m<sup>2</sup> obesity. Fifty six (56%) pregnant women had got married between 20-24 years of age and another 34(34%) were married before 20 years. Ten (10%) got married at age of 25-29 years.

Thirty seven (37%) pregnant women belonged to III class socioeconomic status, 27% were of II class; 20% were of IV class; only 9% and 7% pregnant women belonged to the I and V class respectively. Forty four (44%) participant’s husbands had height between 155-

165cms, 34(34%) had 165-175cms, 12(12%) had  $\leq 155$ cms whereas 10(10%) were having height  $>175$ cms.

**CONCLUSION:** As per the discussion, we conclude that the community pharmacist plays an important role in maternal risk of Low birth weight. This can be done by identifying the individual predicators of selected area. The predicators can change from place to place and area to area. So, the community pharmacist can identify the individual factors of their own place; and he/she can prepare the leaflet according to the predicating factors to contribute the reducing in maternal risk.

**Table 1: Distribution of pregnant women based on Weight**

Weight ( in kgs)	No of pregnat women	Percentage
	Post- counseling study	Post- counseling study
$\leq 40$	0	0
40-50	30	30
50-60	36	36
60-70	26	26
$>70$	8	8
Total	100	100

**Table 2: Distribution of participant's husband based on Weight**

Weight( in kgs)	No of pregnant women	Percentage
	Post- counseling study	Post- counseling study
≤50	8	8
50-60	26	26
60-70	40	40
>70	26	26
Total	100	100

**Table 3: Distribution of pregnant women based on weight gain during pregnancy**

Weight gain ( in kgs)	No of pregnant women	Percentage
	Post- counseling study	Post- counseling study
≤4	40	40
4-6	46	46
6-8	12	12
>8	2	2
Total	100	100

**Table 4: Maternal hemoglobin level during pregnancy**

Hemoglobin level (gms/dl)	No of pregnant women	Percentage
	Post counseling study	Post-counseling Study
>11(normal)	62	62
10-10.9 (mild anemia)	14	14
7-9.9(moderate anemia)	24	24
< 7(severe anemia)	0	0
Total	100	100

**Table 5: Distribution of pregnant women based on diet consumption during pregnancy**

DIETARY HABIT	No of pregnant women	percentage
	Post- counseling study	Post- counseling study
Vegetarian	21	21
Non-vegetarian	79	79
Total	100	100

**Table 6: History of bad pregnancy outcomes among pregnant women**

Pregnancy outcomes	No of pregnant women	Percentage
	Post- counseling study (n=34 )	Post- counseling study
History of cesarean section	22	64.7
History of abortion	2	68
History of low birth weight	7	20.5
History of preterm births	3	8.8
History of stillbirths	-	-
History of neonatal death	-	-

**Table 7: Distribution of newborns by Birth Weight**

Birth weight (in gms)	No of pregnant women	Percentage
	Post- counseling study	Post- counseling study
<2500	7	7
2500-3999	83	83
≥4000	10	10
Total	100	100

**Table 8: Characteristics of newborns**

Parameter		No of pregnant women	Percentage
		Post- counseling study	Post- counseling study
BIRTH TYPE	Vaginal Birth	72	72
	C-Section	28	28
GENDER	Female	51	51
	Male	49	49
TERM OF BIRTH	Preterm	2	2
	Normal	98	98

**Table 9: Representation of Improvement of modifiable factors in between Pre and Post counseling pregnant women**

S.NO	Parameters	Post- counseling Study
1.	Maternal Weight(kgs)	55.08
2.	Weight gain during pregnancy(kgs)	9.9
3.	Hemoglobin level (gms/dl)	12
4.	Newborn weight(kgs)	2.9

**CONFLICT OF INTEREST:** The authors have no conflicts of interest

regarding this investigation.

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