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A PRE-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)

Tulasi Devi B*, Meghana B, Ruby P, Vinay Kumar T

PharmD student, Nirmala College of Pharmacy, Acharya Nagarjuna University, Mangalagiri 522502, Andhra Pradesh, India.

***Corresponding author:**

HOD of Pharmacy Practice, Nirmala College of Pharmacy, AcharyaNagarjuna University, Mangalagiri 522502, Andhra Pradesh, India.E-mail address: vinaykumartheendra@gmail.com

ABSTRACT: Low birth weight (LBW) (birth weight < 2.5 kg) is a major challenging public health problem because it is a leading cause of neonatal death and a major risk factor for infant and under-five morbidity and mortality. The aim of this study was to identify the predictors of low birth weight amongst the babies born in rural areas of the Guntur district. Mortality and morbidity can be prevented by addressing the factors associated with low birth weight. The objective was 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 behavioral predictors on the birth weight of newborns.

KEYWORDS: Low birth weight, predictors, anthropometric, maternal nutrition status, Intrauterine growth retardation.

INTRODUCTION: Low birth weight (LBW) is a challenging multifaceted public health problem as it associated with infant mortality [1]. Successful reproduction should ideally mean that every pregnancy should result in a healthy mother and a healthy baby [2]. However, many pregnancies terminate into adverse outcomes such as pregnancy loss, intrauterine fetal death, Low Birth Weight (LBW), and anomalous births. World Health Organization (WHO) in the year 1992 defined LBW as birth weight less than 2500 Grams (gms) irrespective of the gestational Introduction 3 age; Very Low Birth Weight (VLBW) as birth weight 1500gms or less and Extremely Low Birth Weight (ELBW) as birth weight 1000gms or less.

On the other hand, a wide range in the prevalence of infant macrosomia (birth weight ≥4000gms) has been reported from different countries (10% in the United Kingdom, 2010; 36 % in Canadian Province, 2011) with the increasing trend in developing countries like China (6.0% in 1994 and 10.5% in 2005), Pakistan and Iran. Infrequently, macrocosmic births have also been reported in India; however, the issues of low birth weight remain challenging because of its overwhelming burden (7.6-32.7%) in most of the Indian states [3]. Low birth weight in newborn is the major reason for neonatal deaths resulting in severe short-term and long-term effects on babies [4]. 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. The causes of IUGR include poor nutritional status of the mother at conception, low weight gain during pregnancy due to insufficient dietary intake or extra expenditure of calories (hard work), short maternal height due to youthful under-nutrition and infections, anemia, acute and chronic infections that could result in under-nutrition and consecutive poor pregnancy outcomes including LBW [5].

METHODOLOGY: It was a prospective observational study that was conducted in the rural area of the Guntur District. A Pre-counseling study was conducted from November 2020 to January 2021 and the Post-counseling study will be conducted from February 2021 to May 2021.

Sampling Method: All pregnant women registered within 20 weeks of gestation who gave informed consent to participate in the study were enrolled. The enrolled pregnant women were followed till delivery. The schedule of follow-up visits was as follows.

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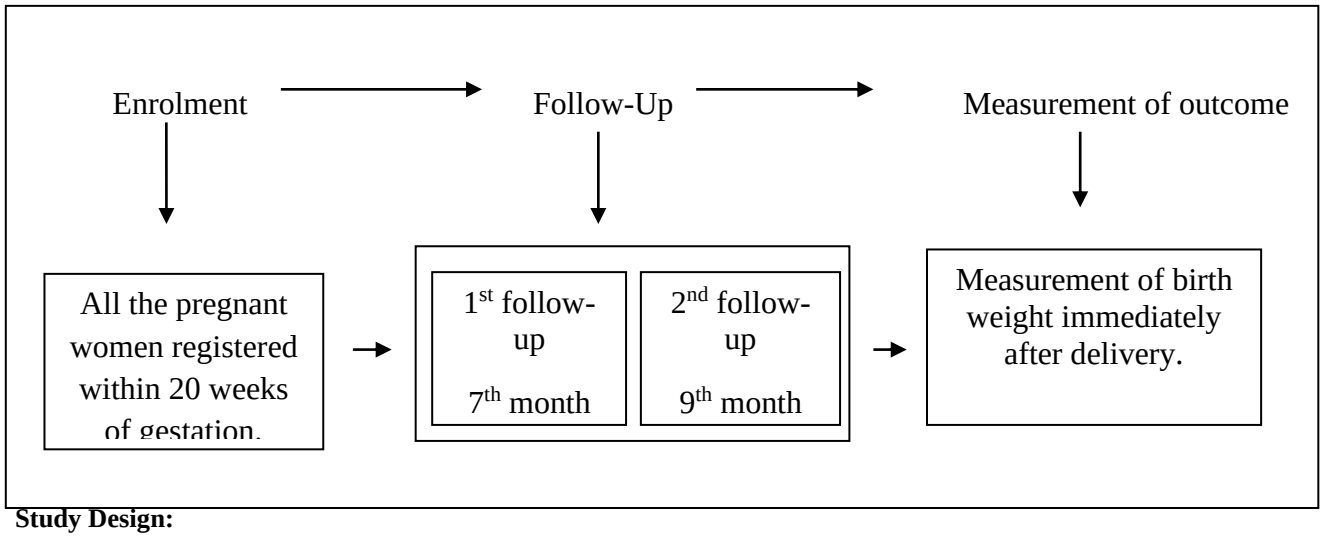

Study Design:

Pre-counselling study - Data collected from previous medical records (N=50)

Identification of predictors for Low Birth Weight by Multivariate linear regression

The Post-counselling study -Data will be collected in the 20th week of pregnancy (N=100)

2nd follow-up

(28th week of pregnancy)

Leaflet distribution, Awareness about Low birth weight.

3rd follow-up

(32nd week of pregnancy)

Adherence to the leaflet.

Techniques of data collection: Data will be collected by study personnel by face-to-face interview with pregnant women in a convenient and confidential place. The data will also be obtained during the follow-up visits. Birth weight was measured. The health profile of the pregnant women will be recorded from the patient case sheet and investigation reports.

Addressing the follow-up: Each participant's contact phone number was noted at the time of enrolment. 2nd contact will be at the 28th week of pregnancy and in the 32nd week the follow-up will be in direct contact.

Statistical analysis: Frequency distribution and the variation in the data will be observed by calculating percentage, mean, median, standard deviation, range, quartiles. Association between birth weight and several independent predictors like socio-demographic and parental anthropometric features; reproductive health, health service use during pregnancy, maternal nutritional status during pregnancy, and behavioral factors will be established using bivariate and multivariate analysis.

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In the bivariate analysis, the Chi-square test, independent student's T-test, and correlation coefficients (Pearson's and Spearman's correlation coefficients) will be applied. Predictors that were found to be statistically associated with birth weight on bivariate analysis will be further subjected for multivariate analysis to identify the real predictors by controlling potential confounding factors. Multivariate linear regression analysis will be performed to estimate the birth weight and to find out the influence of several predictors of birth weight. Multivariate logistic regression analysis will be done to identify the predictors of low birth weight and to observe the combined effects of these predictors on birth weight. P-value <0.05 was considered significant.

RESULT:

Table 1 shows that out of 50 pregnant women, the majority 28(57.3%) were 20-24 years old. Fifteen (28.8%) were 25-29 years and 4(7.5%) were adolescent pregnancies. A total of 2(5.45%) pregnant women were 30-34 years and only one percent of them were ≥35 years old. The mean age of the pregnant women was 23.7 years.

Table 2 shows that seventeen (34.7%) pregnant women belonged to IV^{th} class socioeconomic status, 16(32.8%) were of V^{th} class; 8 (15.5%) and 7(13.5%) pregnant women belonged to the II^{nd} and III^{rd} class respectively. Only 2(3.8%) of the pregnant women were from high class (class I) as per BG Prasad's classification of SES.

Table 3 shows that sixteen (32.5%) of the pregnant women had a height of 150-155 centimeters (cms) and 16(32%) were of 145-150cms. Eleven (22.5%) measured 155-160cms in height, 4(8.04%) of the pregnant women had ≤145cms and 3(5.2%) had height of >160cms. The mean height was 153.2cms.

Table 4 shows that 31(62.7%) pregnant women had total weight gain >8Kgs during pregnancy; 11(22.3%) had 6-8Kgs, 5(10.3%) had 4-6Kgs and 2(4.01%) had ≤4Kgs weight gain during pregnancy. Mean weight gain during pregnancy was 9.9Kgs.

Table 5 that twenty-four (48.46%) pregnant women had got married before 20 years of age and another 22(43.7%) were married between 20-24 years. The mean age at marriage 20.7 years.

Table 6 shows that seventy-four (74%) newborns had weight <2500gms (low birth weight). Out of those normal birth weight babies, 12(24.7%) weighed 2500- 3999gms and one baby had macrosomic birth weight (≥4000gms). Mean birth weight was 2700.28gms.

DISCUSSION: By multivariate regression analysis, a total of 17 predictors of LBW were identified. All the factors with their corresponding adjusted Odds Ratio, Confidence Interval, and the P values are enlisted in the below tables. Out of the total 50 pregnant women, the majority 28(57.3%) were 20-24 years old and Seventy four (74%) newborns had weight <2500gms (low birth weight). Seventeen (34.7%) pregnant women belonged to IV^{th} class socioeconomic status and Sixteen (32.5%) of the pregnant women had a height of 150-155 centimeters (cms). A total of 31(62.7%) pregnant women had total weight gain >8Kgs during pregnancy. Though the majority of the husbands of pregnant women were educated,17(1.6%) were illiterates and 28 (2.7%) had primary education. A total of 480 (46.0%) participant‟s husbands were service holders or business people, 303(29.0%) were either farmers, 188 (18.0%) were laborers and 73(7.0%) were drivers. Twenty four (47.98%) participant‟s husbands had height between 165-175cms and the weight of participant‟s husbands were 23(45.4%) had to weight between 60-70Kgs.

Out of 29 multigravida pregnant women, 10(20.3%) had a history of delivery by cesarean section, 6(12.02%) had a history of abortion, and 5(10.08%) delivered LBW babies in the preceding childbirth. Similarly, 5(10.6%) pregnant women had delivered preterm births, 2(4.05%) had delivered stillbirths and 1(2.02%) of them had a history of neonatal deaths. Twenty-four (48.46%) pregnant women had got married before 20 years of age and the mean was 20.7years. Twenty-three (45.7%) of the pregnant women had normal hemoglobin levels. Mild and moderate anemia was reported among 13 (26.5%) and 13(26.5%) pregnant.

In our study, 33(64.2%) pregnant women were non-vegetarians, and the rest of the 17 (35.7%) were vegetarians. The characteristics of newborns were thirty-two (65.0%) were vaginal births and 17(35.2%) were born by cesarean sections. Female newborns 25 (50.6%) were slightly more than the counterpart male babies 24(49.4%). Five (10.6%) newborns were preterm (<37 weeks of gestation) births.

CONCLUSION: As of now, we have completed the pre-counseling study in which we have identified 17factors of LowBirthWeight predictors. Based upon the above findings, we have designed the leaflet and some counseling

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points which are to be done in the post-counseling study. After the distribution of leaflets among pregnant women and follow-ups, we will expect a decrease in the LowBirthWeight in the current study.

TABLES:

Table 1: Distribution of pregnant women by age

Age (in years)	Number of pregnant women	Percentage (%)
<20	4	7.5
20-24	28	57.3
25-29	15	28.8
30-34	2	5.45
≥35	1	1
Total	50	100

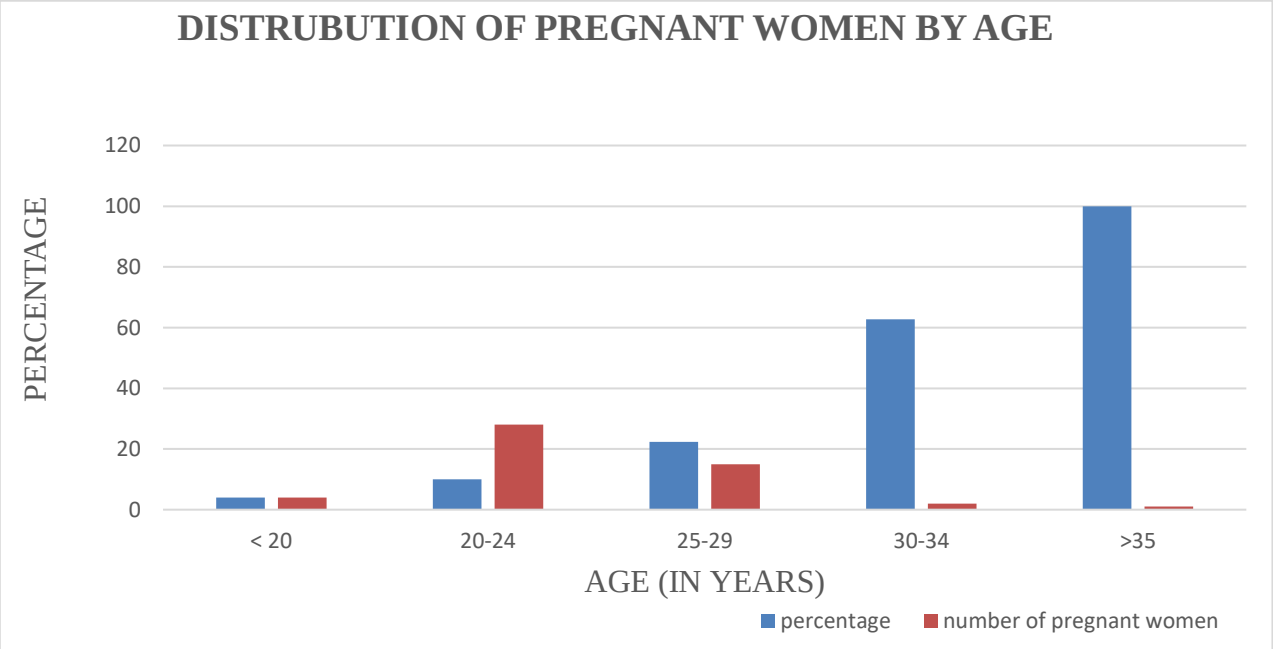

Table 2: Distribution of pregnant women by socioeconomic status

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Socioeconomic Status	No. of pregnant women	Percentage (%)
I(≥ 5000)	2	3.8
II (2500-4999)	7	13.5
III (1500-2499	8	15.5
IV(750-1499)	17	34.7
V(<750)	16	32.8
Total	50	100

Table 3: Distribution of pregnant women based on height

Height (in cms)	Number of pregnant women	Percentage (%)
≤145	4	8.04
145-150	16	32
150-155	16	32.01
155-160	11	22.5
>160	3	5.2
Total	50	100

Table 4: Distribution of pregnant women based on weight gain during pregnancy

Weight gain (in Kgs)	Number of pregnant women	Percentage (%)

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≤4	2	4.01
4-6	5	10.03
6-8	11	22.318
>8	31	62.739
Total	50	100

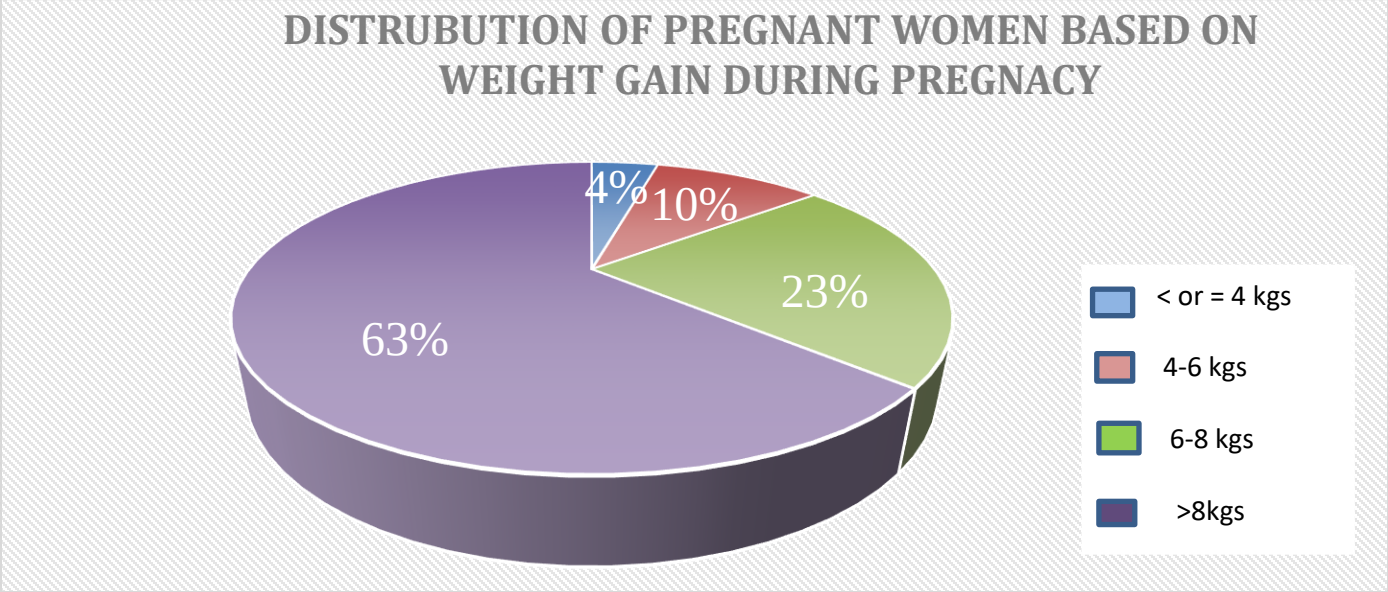

Table 5: Distribution of pregnant women by age at marriage

Age (in years)	Age at marriage	Percentage (%)
<20	24	48.46

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20-24	22	43.7
25-29	3	7.01
≥30	1	1.9
Total	50	100

Table 6: Distribution of newborns by Birth Weight

Birth weight (in gms)	Number of newborns	Percentage (%)
<2500	37	74
2500-3999	12	24.7
≥4000	1	2.01
Total	50	100

CONFLICT OF INTEREST: The authors have no conflicts of interest regarding this investigation**.**

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