

**EFFECT OF MALNUTRITION DURING PREGNANCY LOW BIRTH WEIGHT  
OUTCOME BASED ON ASSESSMENT OF CLINICAL CASES**

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**ABSTRACT**

This is a prospective interventional and descriptive study for assessment on effect of malnutrition during pregnancy mainly on low body weight (LBW) neonates. The study includes 200 clinical cases of LBW neonates less than 2.5kg immediately after birth. Biochemistry profile was studied and compared with the standard values and data of its effects due to deviation from the standard range are collected. The variables studied includes age, gestational weight gain (GWG), LBW, infertility, prior spontaneous abortion, prior induced abortion, toxic exposure, socio-economic status, dietary intake. A total of 200 clinical case sheets of mother-infant pair immediately after delivery was collected from Department of special newborn care unit, civil hospital, Karimnagar and interviewed Pharmacists play a vital role in counseling women, family members and educating the future generations and improve the nutritional state of both pregnant woman and neonates mainly to decrease morbidity and mortality.

**KEYWORDS:** LBW, malnutrition, neonates, nutrition, pregnant woman.**INTRODUCTION**

All human beings need a balanced amount of nutrients for proper functioning of the body system. Nutrition requirement varies with respect to age, gender and during physiological changes such as pregnancy.<sup>[1]</sup> Pregnancy is such a critical phase in a woman's life, when the expecting mother needs optimal nutrients of superior qualities to support the developing foetus. Child and mother both are believed as a single unit whether it is socially, culturally or most important biologically.<sup>[2]</sup> In developing countries like India, most of the women fall in the reproductive age group of 15-44 years, which constitute 20-22% of whole population. In India, health status of mother in this group decides the health of the society, which finally determines the health of the community.<sup>[3]</sup> It is well documented that inadequate maternal nutrition results in increased risks of short term consequences such as; Intra Uterine Growth Restriction(IUGR), low birth weight, preterm birth, prenatal and infant mortality and morbidity. Moreover, excessive intake of nutrients during pregnancy can lead to some pregnancy complications (such as, preeclampsia and gestational diabetes, macrosomia, distocia and higher prevalence of caesarean section).<sup>[4]</sup>

Birth weight (BW) is the single most predictive factor of mortality in the first few months of life, and a baby's birth weight is an important indicator of his health. The World Health Organization (WHO) defined low birth weight (LBW) as that below 2,500gm. In India 85% of neonatal mortality is associated with LBW. BW below

2.5 kg reflects intrauterine malnutrition involving micro-nutrient deficiencies, infections such as malaria and syphilis, and maternal malnutrition. The incidence of LBW is therefore a powerful indicator of infant survival, and indirectly of the mother's nutritional status. Undernourished children have lower resistance to infection and are more likely to die from common childhood ailments as diarrheal diseases and respiratory infections.<sup>[5]</sup>

This study accesses the nutritional status of pregnant women in our area and to educate people on nutritional health especially for pregnant women. It ends by giving information regarding consequences of malnutrition and its effect on neonates mainly those who are with LBW. It educates the society on the causes of malnutrition and helps for a healthy society.<sup>[5]</sup>

**MATERIALS AND METHODS**

This study was a hospital based prospective observational study carried over a period of 3 months (mid December to mid March 2017) in Civil Hospital, Karimnagar, Telangana. Neonates with low birth weight and physical abnormalities were included in the study. Neonates with healthy weight were excluded from the study.

**Data collection and Assessment**

A suitable data collection form was designed to collect required information and analyze the data. Data was collected from the case sheets of LBW neonates

immediately after delivery. Parameters such as biochemistry profile of mother and newborn, interviewing mother and her family members, and other complications are taken in to consideration.

#### Data analysis

The analysis was done by prospective method which includes details of LBW neonates and mother,

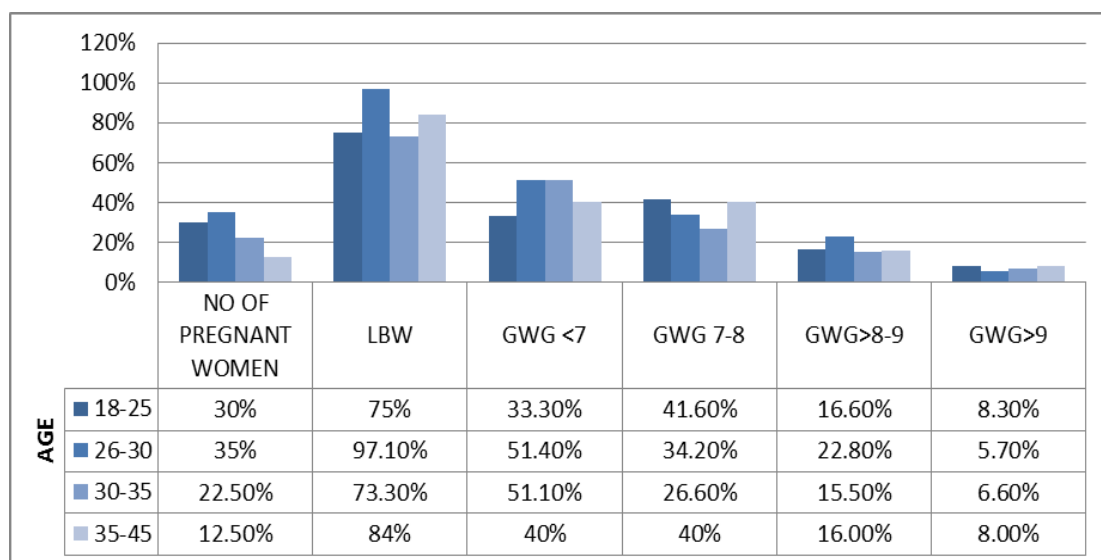
biochemistry profile, complications and from their family members.

#### RESULTS

In our study a total of 200 subjects were enrolled and all of them had given birth to neonates who had low birth weight.

**Table 1: Demographic Profile of Pregnant Women Regarding Weight.**

AGE	18-25	26-30	30-35	35-45
PRIOR SPONTANEOUS ABORTION	8.3%	21.4%	22.2%	72%
PRIOR INDUCED ABORTION	30%	32.8%	8.8%	8%
PRIOR STILL BIRTH & NEONATAL DEATH	25%	25.7%	26.6%	36%
INFERTILITY	10%	21.4%	40%	36%



**Figure 1: Graph shows demographic Profile Of Pregnant Women Regarding Weight.**

**Table 2: Distribution of patients showing exposure to toxins.**

AGE	18-25	26-30	30-35	35-45	
TOXIC EXPOSURES	SMOKING	3.3%	5.71%	11.15	8%
	ALCOHOL	16.6%	21.4	20%	24%
	CAFFIENE	83.3%	94.2%	84.4%	72%
	NARCOTICS	21.6%	28.5%	24.4%	20%
	MARIJUANA	15%	17.1%	13.3%	32%

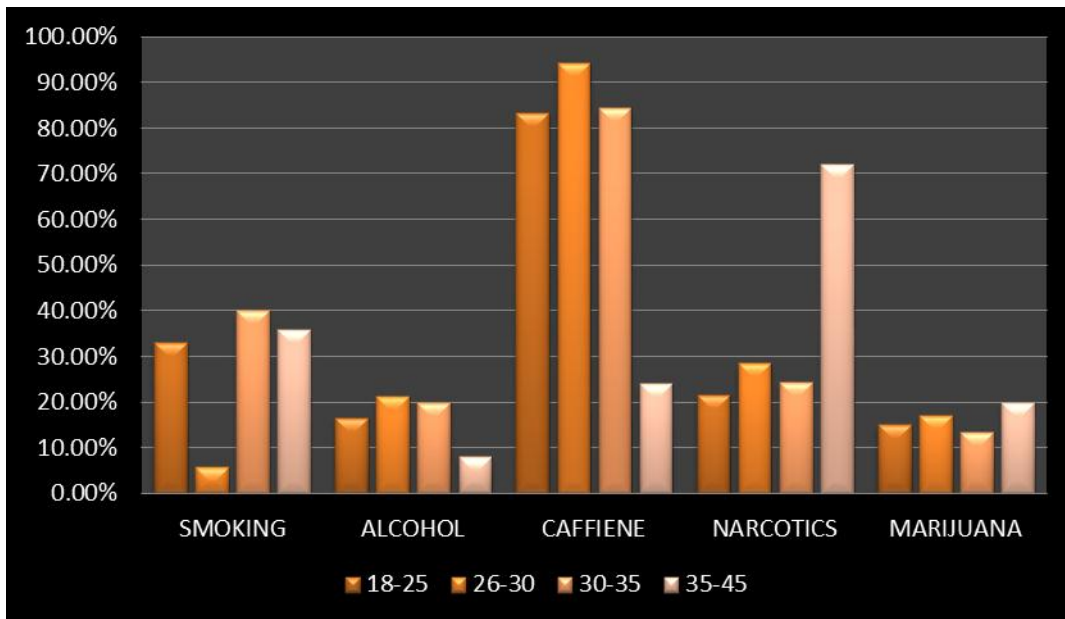


Figure-2: Graph shows distribution of patients according to exposure to toxins.

Table 3: Details of patients regarding blood glucose levels.

			NO OF PREGNANT WOMEN	
BLOOD GLUCOSE	PPBS	<110	15%	
		110-180	57.5%	
		>180	27.5%	
	FBS	<70	37.5%	
		70-110	42.5%	
		>110	20%	
	RBS	<134	30%	
		134-145	52.5%	
		>145	15%	

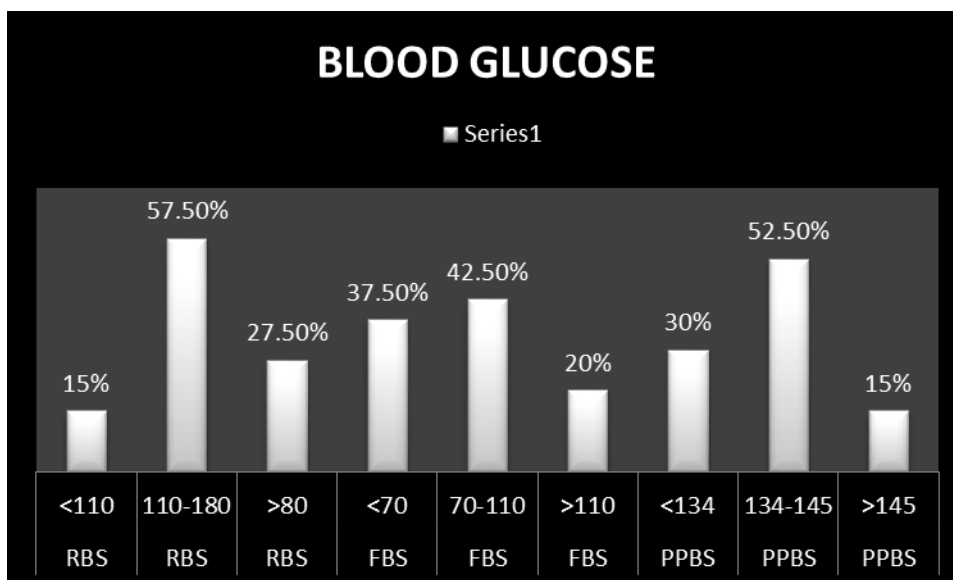
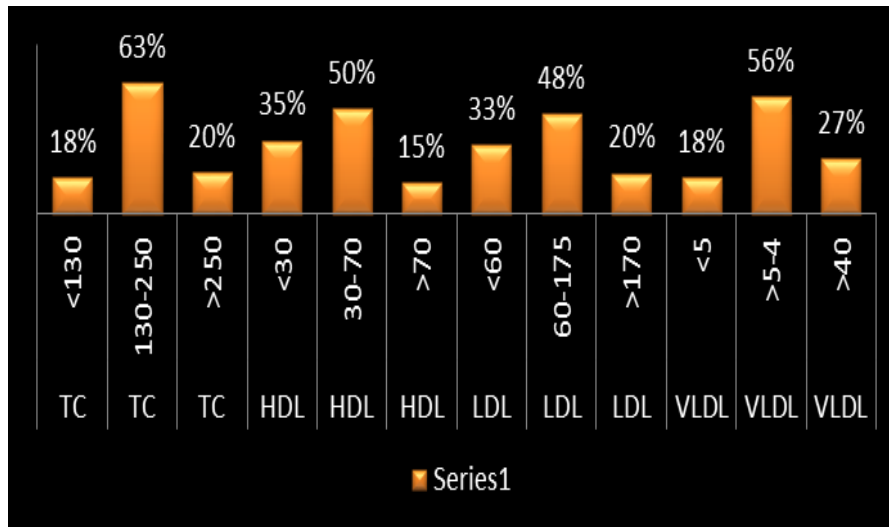


Figure 3: Graph shows details of patients regarding blood glucose levels.

**Table 4: Distribution of patients according to lipid profile.**

			NO OF PREGNANT WOMEN	
LIPID PROFILE	TOTAL CHOLESTEROL	<130	17.5%	
		130-250	62.5%	
		>250	20%	
	HDL	<30	35%	
		30-70	50%	
		>70	15%	
	LDL	<60	33%	
		60-170	47.5%	
		>170	19.5%	
	VLDL	<5	17.5%	
		5-40	56%	
		>40	26.5%	

**Figure 4: Graph shows Distribution of patients according to their lipid profile.****Table 5: Distribution of patients based on their social status and other reasons.**

REASON	NO OF PREGNANT WOMEN	%
VERY POOR	180	90
FAMILY DISHARMONY	70	35
PHYSICALLY ILL	50	25
ECONOMICALLY POOR	150	80
PSHYCIC STRESS	80	40
MULTIPLE DISEASED CONDITIONS	20	10
LATE PREGNANCY	80	40
POLY CYST OVARAN SYNDROME	90	45

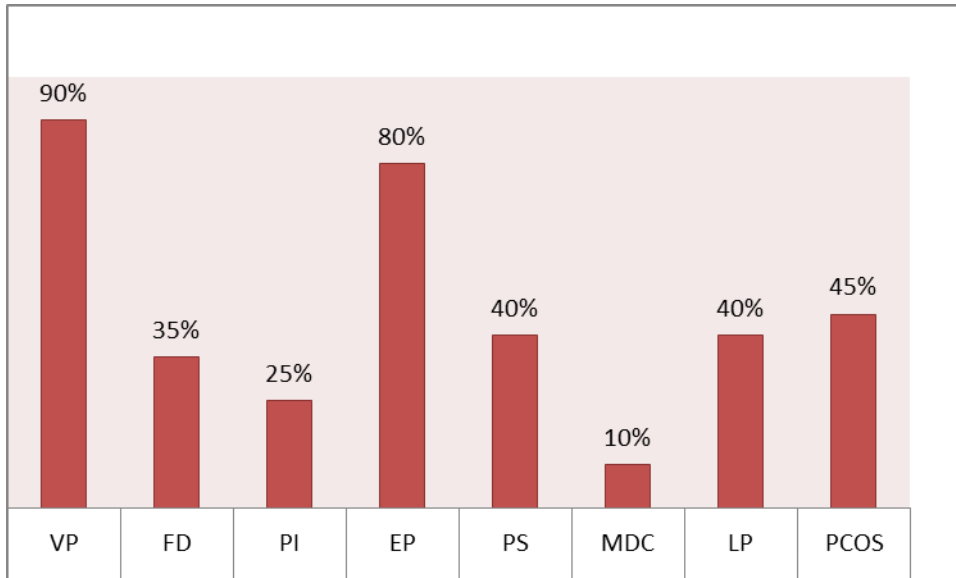


Figure 5: Graph shows distribution of patients based on their social status and other reasons.

Table 6: details of patients based on educational level, hygiene and nutritional status.

DETAIL		NO OF PREGNANT WOMEN	%
EDUCATIONAL LEVEL	NO EDUCATION	120	60
	PRIMARY	30	15
	SECONDARY	50	25
HYGENIC CONDITION	VERY POOR	70	35
	POOR	30	15
	BELOW AVERAGE	20	10
	AVERAGE	15	7.50
	BETTER	65	32.5
NUTRITIONAL STATUS	VERY POOR	90	45
	POOR	30	15
	BELOE AVERAGE	25	12.5
	AVERAGE	25	12.5
	BETTER	30	15

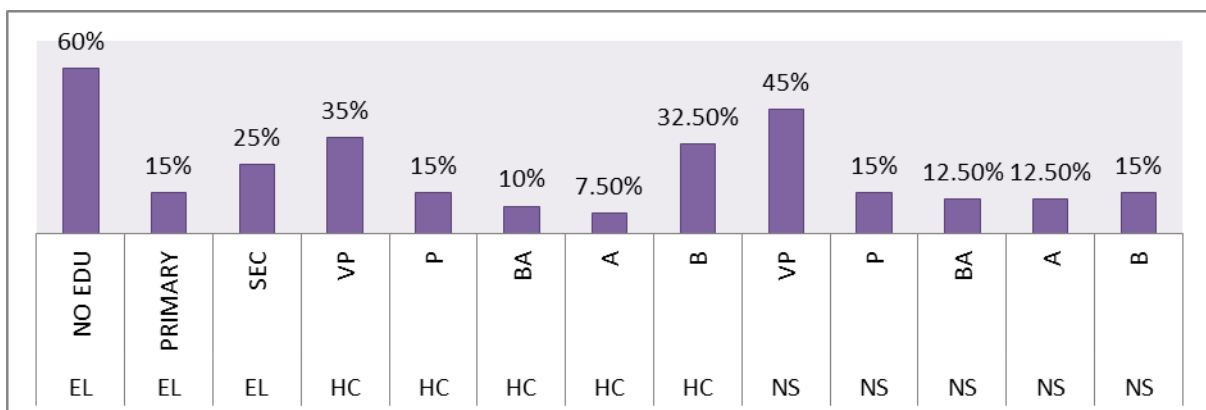


Figure 6: Graph shows details of patients based on educational level, hygiene and nutritional status.

**DISCUSSION**

Out of 200 patients all belongs to age group between 18-26 years of 91% with GWG, prior spontaneous abortion are in age group of 35-40 is 72%, infertility is also more

in this age group, toxic exposure is mainly seen in age group of 35-45 with more stress and most of toxic exposures are caffeine 70% and marijuana of 32%,

maximum no of women's are exposed to caffeine in all age groups.

Increase in blood glucose leads to gestational diabetes decrease in calcium levels and hypoxic conditions leads to fetal bone development and physical disabilities are observed and low birth weight. No women in our study were suffered with gestational diabetes.

Decrease in TG results in preterm delivery and decrease in weight of neonate. An increase in TG results in hypercoagulability. Abnormal lipid profile results in atherosclerotic CVD and it has direct impact on endothelial function in pregnant women and neonates. The lipid profile shows normal levels in all patients.

Other factors are also considered by interviewing the mother and family members and enquired for prior spontaneous abortion, prior induced abortion and prior stillbirth and neonatal death. These factors are useful in assessing the nutritional status and ability of mother. Toxic exposures are also investigated during interviewing the patient. Caffeine leads to miscarriage, pre mature birth. Sometimes it leads to decrease in brain development, decrease in muscle fibers etc.

Mainly the people from rural areas are more prone to malnutrition due to lack of knowledge on dietary intake during pregnancy and poverty and several other spiritual beliefs and wrong practices.

## CONCLUSION

Our study has found that mothers had poor knowledge on nutrition and dietary intake. A significant number of pregnant women were unaware of the effect of malnutrition during pregnancy on birth outcomes. The knowledge level of the pregnant women can be empowered with essential health information. Despite many programs and efforts put down by the government the malnutrition rates still prevail high in the county. The programs were beneficial only to a certain class of people. We believe that the government should develop a plan in eradicating poverty in the country and providing a strong campaign across the country about the "killer" with real facts and figures, its treatment and its complications. We believe that Malnutrition has drawn the least attention of the leaders to find a solution. Nutrition education by the clinical pharmacist, pharmacist and other healthcare professionals to the pregnant women is essential to help the risk of under nutrition and its consequences.

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