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## **Association of Hypertension and Dietary Variables in Pregnant Women Attending Khamis Mushyat Hospital, Ksa**

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### **Abstract**

Hypertension affects 10% of all pregnancies and is accompanied by an increase in fetal and maternal morbidity and mortality. Hypertension in pregnancy includes a wide spectrum of conditions, including pre-eclampsia and eclampsia, pre-eclampsia superimposed on chronic hypertension, and gestational hypertension. The objectives of the study were to study the factors associated with hypertension in pregnant women and create awareness about the disease. A cross sectional study was conducted on 200 pregnant women attending antenatal clinic of Khamis Mushayat hospital aged 16-45 years. Interview questionnaire containing details such as number of pregnancies, age of current pregnancy, BMI, weight of the mother, blood sugar levels, abortions, blood pressure of the mother, diseases if any other than hypertension such as diabetes mellitus, renal diseases, etc. The association between variables was studied on SPSS 22 platform using Chisquare. Also an awareness program was conducted. A significant relationship existed between blood pressure of the mother and intake of rice, wheat, oats, corn, legumes, peas, chicken, fish, meat, milk, laben, apples, mango, pears, orange, grapes, aubergine, lettuce, carrot, cabbage, potatoes, zucchini, cucumber, sausages, butter and margarine and chocolates, biscuits, cakes etc. A highly significant relationship was observed between weight of the mother, blood pressure of the mother and dietary intake. Also significant relationship existed between some of the background variables such as blood pressure of the mother and dietary recommendations given and fasting blood sugar levels. This study throws light on the importance of diet in maintaining body weight and blood pressure and sugar levels.

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Hence it can be concluded that blood pressure of the mother had a significant relationship between dietary intake, dietary recommendations given and fasting blood sugar levels. It is the need of the hour to counsel pregnant subjects on the ill effects of gestational hypertension and diabetes mellitus and control the same by addressing body weight, dietary issues and physical exercise.

**Keywords:** Hypertension; diet; recommendations; pregnancy.

## **1. Introduction**

Pregnancy-induced hypertension (PIH) remains the main cause of maternal and fetal mortality. Insulin resistance (IR) and autonomic nervous system (ANS) imbalance are two principal drivers of PIH development [1]. Adverse perinatal outcome was maximum in eclampsia group, followed by pre-eclampsia and lastly in gestational hypertension. Hence, higher maternal serum uric acid was associated with poor perinatal outcome ( $p < .05$ ) [2]. Pregnancy-induced hypertension significantly influences the growth and development of both the placenta and fetus [3]. Outpatient management of mild hypertension remote from term in the mature pregnant women was associated with similar maternal outcomes but with a nonstatistically higher stillbirth rate compared with the younger pregnant woman [4]. Pregnant women with HDP have an increased risk of subsequent stroke. Preterm delivery and older ages increase the risk of subsequent stroke. . Early identification of women with HDP is needed for prevention [5].

### **1.1 Objectives**

1. To study the relationship between weight, BP of the mother and diet.
2. To create awareness among pregnant women about prevention of hypertension during pregnancy.

## **2. Methodology**

A cross sectional study was conducted on 200 pregnant women attending antenatal clinic of Khamis Mushayat hospital, KSA aged 16-45 years. Role of diet and its relation between BP and weight of the mother was the aim of the study. Interview questionnaire containing details such as weight, BP and their relationship to diet was used.

An awareness program was conducted in Khamis maternity hospital to enlighten the pregnant women about causes and prevention of hypertension during pregnancy. The results of data were analyzed by using the SPSS 20 software.

## **3. Results**

In a majority of 18.5% of the subjects, a highly significant relationship existed between weight of the mother (66-75kg) and the quantity of rice consumption (200g).

**Table I: weight of the mother vs rice quantity**

	RICE_quantity				Total
	=200g	=More than200g	=less than200g	NO	
<45					
% of Total	0.5%	0.0%	0.5%	0.0%	1.0%
45-55					
% of Total	2.5%	1.0%	1.0%	0.5%	5.0%
56-65					
% of Total	10.5%	6.0%	10.0%	0.5%	27.0%
66-75					
% of Total	18.5%	9.0%	2.5%	0.0%	30.0%
76-85					
% of Total	13.0%	5.5%	0.5%	0.0%	19.0%
86-95					
% of Total	8.0%	4.0%	0.0%	0.0%	12.0%
96-105					
% of Total	2.5%	2.0%	0.0%	0.0%	4.5%
>105					
% of Total	1.5%	0.0%	0.0%	0.0%	1.5%
Total					
% of Total	57.0%	27.5%	14.5%	1.0%	100.0%

p < 0.01

In 50% of the subjects, there was a highly significant relationship between normal blood pressure of the mother and the amount of rice consumed (200g).

**Table II:** blood pressure of the mother vs rice quantity

		RIICE_quantity				Total
		=200g	=More than200g	=less than200g	NO	
Normal						
	% of Total	50.0%	15.5%	9.0%	1.0%	75.5%
BP_of_the_mother Ab normal(high)						
	% of Total	5.0%	8.5%	3.0%	0.0%	16.5%
Ab normal(low)						
	% of Total	2.0%	3.5%	2.5%	0.0%	8.0%
Total						
	% of Total	57.0%	27.5%	14.5%	1.0%	100.0%

p < 0.01

**Table III:** blood pressure vs wheat quantity

		Wheat_quantity				Total
		=200g	=more than 200g	=less than 200g	NO	
Normal						
	% of Total	44.0%	10.0%	12.5%	9.0%	75.5%
BP_of_the_mother Ab normal(high)						
	% of Total	3.5%	9.0%	2.0%	2.0%	16.5%
Ab normal(low)						
	% of Total	1.5%	2.5%	2.5%	1.5%	8.0%
Total						
	% of Total	49.0%	21.5%	17.0%	12.5%	100.0%

p < 0.01

In a majority of 44% of the subjects, there was a highly significant relationship between normal blood pressure

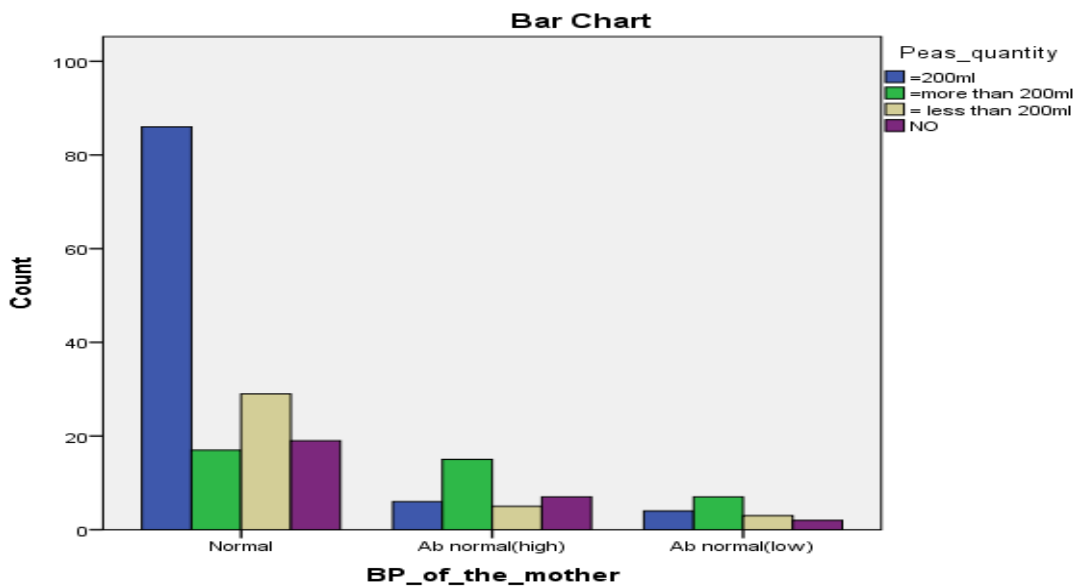
of the mother and the amount of wheat consumed (200g).

**Table IV:** blood pressure vs oats quantity

		Oats_quantity				Total
		=200g	=more than 200g	=less than 200g	NO	
Normal						
	% of Total	44.5%	7.5%	12.5%	11.0%	75.5%
BP_f_the_mother Ab normal(high)						
	% of Total	3.5%	8.5%	2.5%	2.0%	16.5%
Ab normal(low)						
	% of Total	2.0%	2.5%	2.0%	1.5%	8.0%
Total						
	% of Total	50.0%	18.5%	17.0%	14.5%	100.0%

p < 0.01

In a majority of 44.5% of the subjects, there was a highly significant relationship between normal blood pressure of the mother and the consumption of oats (200g).



**Figure 1:** blood pressure vs peas quantity

In a majority of 43% of the subjects, a highly significant relationship existed between normal blood pressure of the mother and the intake of peas (200g).

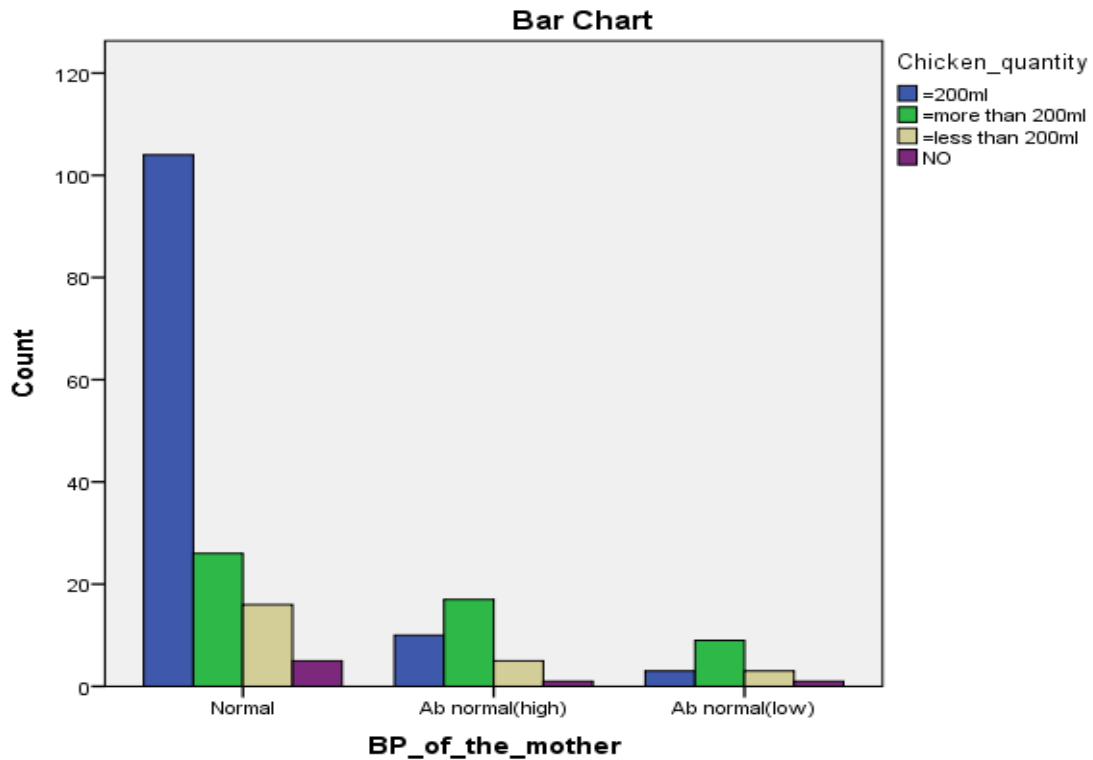


Figure 2: blood pressure vs chicken quantity

In a majority of 52% of the subjects, a highly significant relationship was observed between normal blood pressure of the mother and the consumption of chicken (200g).

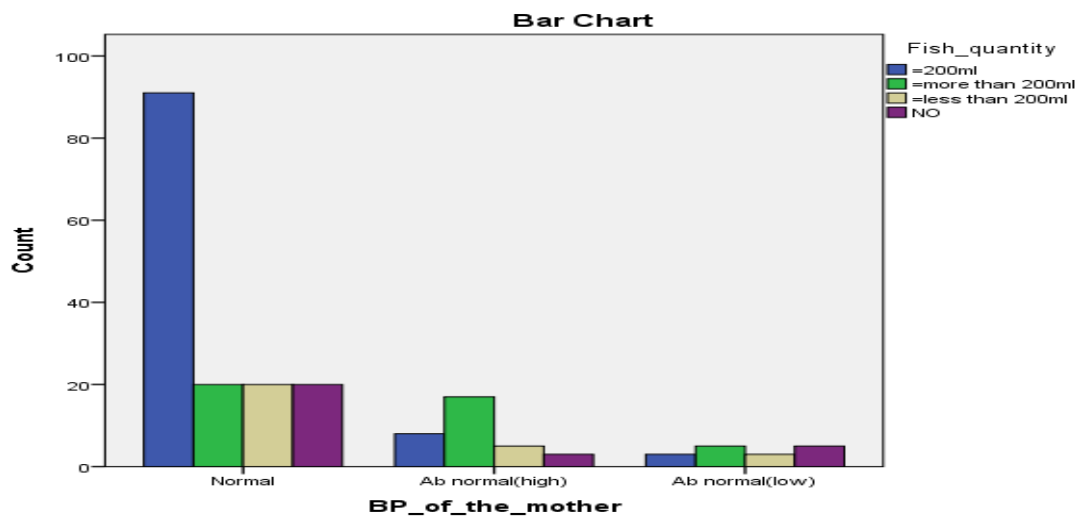


Figure 3: blood pressure vs fish quantity

In a majority of 45.5% of the subjects, normal blood pressure significantly related to quantity of fish consumed (200g).

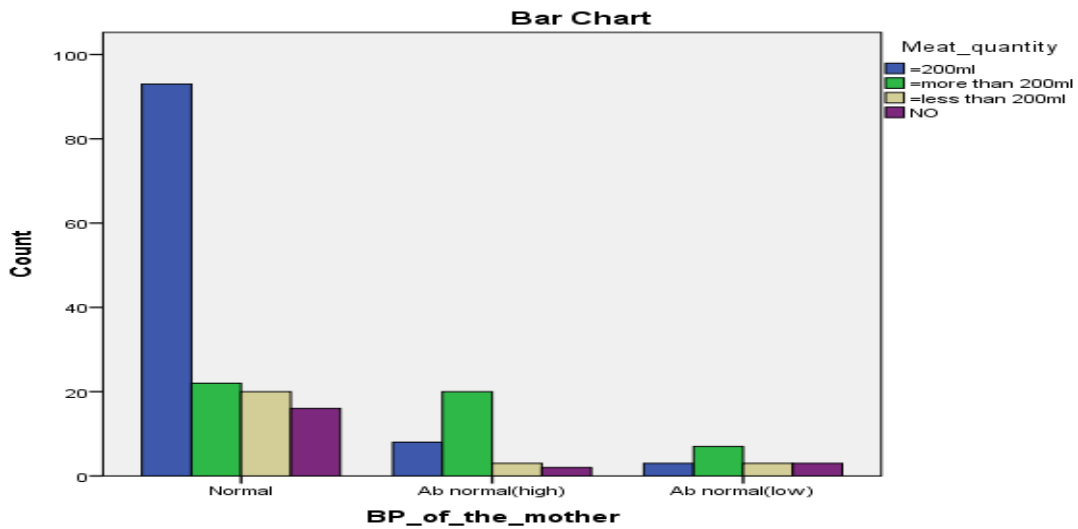


Figure 4: blood pressure vs meat quantity

In a majority of 46.5% of the subjects, a highly significant relationship was observed between normal blood pressure of the mother and the amount of meat consumed (200g).

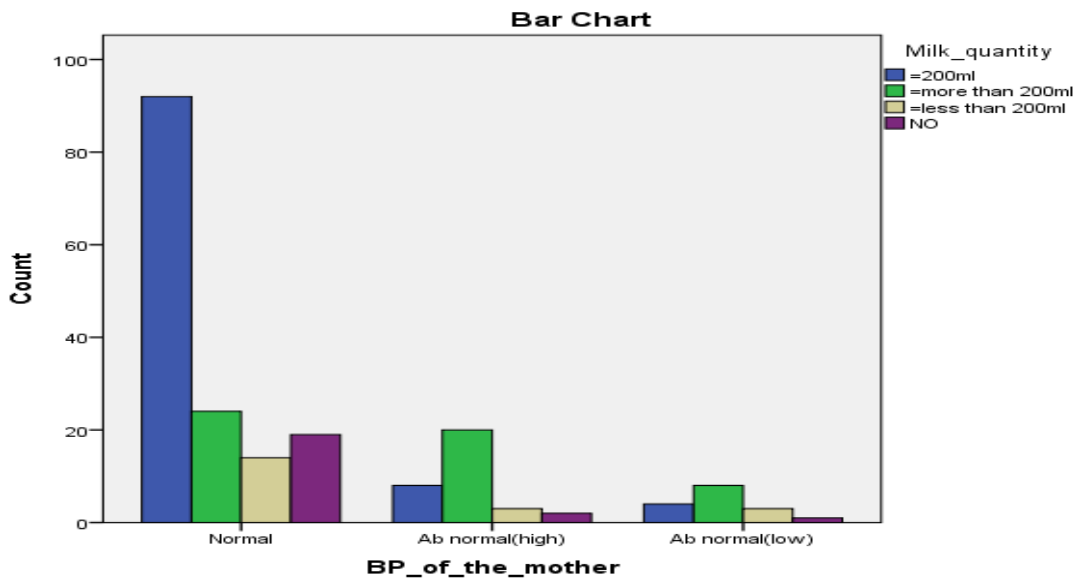


Figure 5: blood pressure vs milk consumed

In a majority of 46.5% of the subjects, a highly significant relationship existed between normal blood pressure of the mother and the amount of milk consumed (200g).

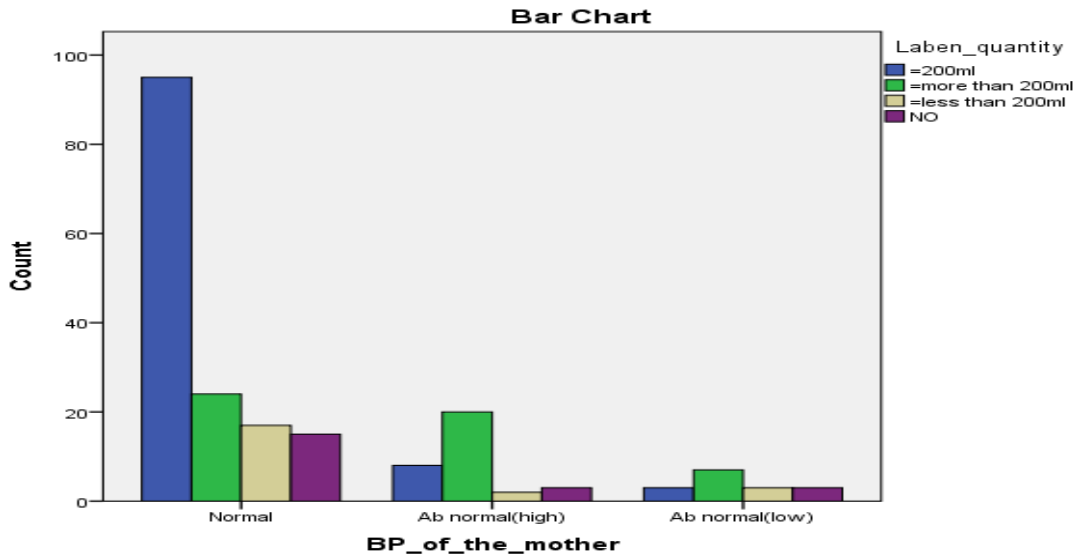


Figure 6: blood pressure vs laben quantity

In a majority of 47.5% of the subjects, a highly significant relationship was observed between normal blood pressure of the subjects and amount of laben consumed (200ml).

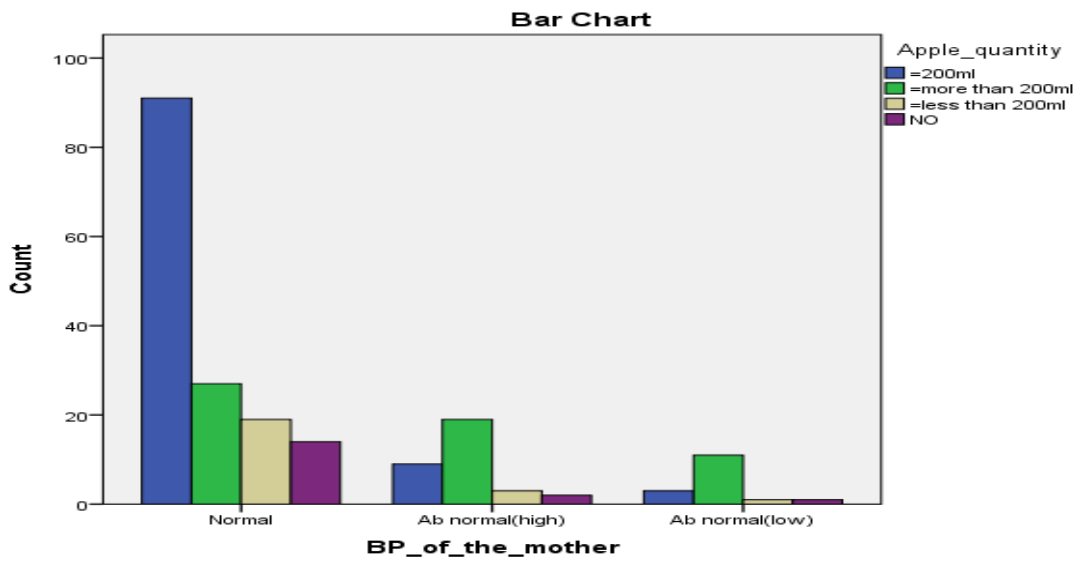


Figure 7: blood pressure of the mother vs apples consumed

In a majority of 45.5% of the subjects, normal blood pressure highly significantly related to consumption of apples (200g).

#### 4. Discussion

##### 4.1 Relationship between weight of the mother and diet



A highly significant relationship was observed between weight of the mother and intake of rice, wheat, oats, corn, legumes, peas, chicken, fish, meat, milk, laben, lettuce and fatty meat.

#### ***4.2 Relationship between blood pressure of the mother and diet***

A significant relationship existed between blood pressure of the mother and intake of rice, wheat, oats, corn, legumes, peas, chicken, fish, meat, milk, laben, apples, mango, pears, orange, grapes, aubergine, lettuce, carrot, cabbage, potatoes, zucchini, cucumber, sausages, butter and margarine and chocolates, biscuits, cakes etc. A highly significant relationship was observed between weight of the mother, blood pressure of the mother and dietary intake. Also significant relationship existed between some of the background variables such as blood pressure of the mother and dietary recommendations given and fasting blood sugar levels. This study throws light on the importance of diet in maintaining body weight and blood pressure and sugar levels.

#### **5. Conclusion**

Hence it can be concluded that blood pressure of the mother had a significant relationship between dietary intake, dietary recommendations given and fasting blood sugar levels. It is the need of the hour to counsel pregnant subjects on the ill effects of gestational hypertension and diabetes mellitus and control the same by addressing body weight, dietary issues and physical exercise.

#### **6. Recommendations**

It would be useful to study about the effect of physical exercise on hypertension and glycemic parameters. Also the effect of low glycemic index diets and DASH (dietary approaches to stop hypertension) on glycemic and hypertension parameters can be studied.

#### **References**

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