

# Associated risk factors with pregnancy-induced hypertension: A hospital-based KAP study

## Abstract

**Background:** Hypertension, complicating 5-10% of all pregnancies, is a leading cause of maternal and fetal morbidity, particularly when the elevated blood pressure is due to preeclampsia. The control of pregnancy-induced hypertension (PIH) appears difficult to achieve. Part of the reason for poor control of hypertension in these women might be limited PIH self-care knowledge. **Aims:** The aim was to find out the association between PIH and knowledge, attitude, and preventive practices among pregnant women. **Settings and Design:** A cross-sectional study was carried out in Gynae O.P.D., of Sir Sundar Lal Hospital, Banaras Hindu University, Varanasi. **Materials and Methods:** The study was carried out in the month of September to October, 2013 on every Monday in Gynae O.P.D., of Sir Sundar Lal Hospital, Banaras Hindu University, Varanasi. The target population includes all pregnant women between the age group of 15-49 years, who attended antenatal clinic. The interview schedules were administered to the women. Respondents were assured of anonymity and confidentiality to ensure honest response. **Statistical Analysis Used:** Statistical analysis will be done by Epi Info™ 7. **Results and Conclusion:** Finding of the study shows that > 50% (60.49%) of women are unaware about hypertension. Those women belong to the age group of 20-30, and they also diagnosed with prehypertension. The overall incidence of Eclampsia is 13.58% in study population regarding PIH. Lack of exercise is a major cause to for hypertension. Pregnancies complicated by hypertensive disorders lead poor maternal and perinatal outcomes.

**Key words:** Hypertension, preeclampsia, pregnancy-induced hypertension, risk factors, self-care knowledge

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## INTRODUCTION

Pregnancy-induced hypertension (PIH) known as toxemia or preeclampsia is a form of high blood pressure (BP) in pregnancy. It is one of the leading causes of mortality and morbidity among pregnant women. As stated by the WHO, World Health Report (2005) "Make Every Mother and Child Count," the major causes of maternal deaths are severe bleeding/hemorrhage (25%), infections (13%), unsafe abortions (13%), eclampsia (12%), obstructed labor (8%), other direct causes (8%), and indirect causes (20%).

Pregnancy-induced hypertension occurs in about 5-8% of all pregnancies. Although the cause of PIH is unknown, certain factors are known to increase the risk of PIH, such risk factors include that PIH mostly affects young women with a first pregnancy, pregnant women younger than 20 years and those older than 40 years, women with multiple fetuses, pregnant diabetics, pregnant women with preexisting hypertension or previous episodes of preeclampsia or PIH and pregnant women with preexisting renal disease.<sup>[1]</sup>

### Problem burden of pregnancy-induced hypertension

- Major cause of maternal and perinatal morbidity and mortality
- Complicates 7-10% of pregnancies:
  - 70% Preeclampsia-eclampsia
  - 30% chronic hypertension
  - Eclampsia 0.05% incidence
  - Second leading cause of maternal mortality in the developed world.

- ~1/3 of all maternal deaths are from HTN'sive disorders
- Young female 3-fold increased risk
- In developed countries, 16% of maternal deaths due to hypertensive disorders
- Preeclampsia - a multifactorial, multi-system hypertensive disorder of pregnancy, is most dangerous
- Etiology remains unknown.

### Symptoms and associated risk of developing pregnancy-induced hypertension<sup>[2]</sup>

Symptoms of PIH	Risk of developing PIH
Increased blood pressure	Is under age 20 or over age 35
Protein in the urine	Has a history of chronic hypertension
Edema (swelling)	Has a previous history of PIH
Sudden weight gain	Has a female relative with a history of PIH
Visual changes such as blurred or double vision	Is underweight or overweight
Nausea, vomiting	Has diabetes before becoming pregnant
Right-sided upper abdominal pain or pain around the stomach	Has an immune system disorder
Urinating small amounts	Has kidney disease
Changes in liver or kidney function tests	Has a history of alcohol, drug or tobacco use
Breathing problems	Is expecting twins or triplets

PIH = Pregnancy induced hypertension

### Classification of hypertension in pregnancy

#### Chronic hypertension

- BP  $\geq$ 140 mmHg systolic or 90 mmHg diastolic prior to pregnancy or before 20 weeks gestation
- Persists >12 weeks postpartum.

#### Gestational hypertension

- High BP that develops after week 20 in pregnancy and goes away after delivery.

#### Preeclampsia

- Both chronic hypertension and gestational hypertension can lead to this severe condition after week 20 of pregnancy. Symptoms include high BP and protein in the urine and can lead to serious complications for both mom and baby if not treated quickly.<sup>[3]</sup>

### High risk of developing preeclampsia

- First pregnancy.
- Preeclampsia or eclampsia in any previous pregnancy.
- 10 years or more since the last baby.
- Age 40 years or more.
- Family history of preeclampsia (in mother or sister).
- Certain underlying medical conditions:
  - Preexisting hypertension.
  - Preexisting renal disease.
  - Preexisting diabetes.<sup>[4]</sup>

### How can prevent gestational hypertension

- Use salt as needed for taste
- Drink at least eight glasses of water a day
- Increase the amount of protein you take in and decrease the amount of fried foods and junk food you eat
- Exercise regularly and get enough rest
- Elevate your feet several times during the day
- Avoid drinking alcohol and beverages containing caffeine
- Your doctor may suggest you take prescribed medicine and additional supplements.

### Degree of hypertension

JNC 7 blood pressure classification			
Category	Systolic	and	Diastolic
Normal	<120	and	<80
Prehypertension	120-139	or	80-89
Hypertension, stage 1	140-159	or	90-99
Hypertension, stage 2	$\geq$ 160	or	$\geq$ 100

National Heart, Lung and Blood Institute. JNC 7 Express. The Seventh Report of the Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, 2003

### Objective of the study

- To assess self-care knowledge among pregnant women regarding hypertension.
- To know the preventive measures taken by pregnant women to check the hypertension.
- To examine the relationship between self-care knowledge and preventive measures taken with stages of hypertension among pregnant women.

## MATERIALS AND METHODS

### Research design

This is a cross-sectional study carried out on the knowledge, attitude, and preventive practices of PIH on women who attended antenatal clinic, Sir Sundar Lal Hospital, Banaras Hindu University, Varanasi.

### Research setting

The setting of the study is the Sir Sundar Lal Hospital, Banaras Hindu University, Varanasi. It was founded in 1926.

### Research population

The target population includes all pregnant women between the age group of 15-49 years, who attended antenatal clinic in the month of September to October, 2013 on every Monday in Gynae O.P.D., of Sir Sundar Lal Hospital, Banaras Hindu University, Varanasi. Total sample size includes 82 women, when the study was done.

### Collection of data

A semi-structured interview schedules containing precoded questions were used for data collection. Verbal consent was taken

by respondents and assured them for anonymity and confidentiality to ensure honest response.

### Analysis of data

Data were analyzed using the Epi Info™ 7 (Centers for Disease Control and Prevention (CDC), Atlanta, Georgia USA). It consisted of descriptive statistics including calculation of the frequencies, mean scores for the items.

## RESULT AND DISCUSSION

Table 1 shows that more than half of the women (≈63%) belong to rural areas, who attended antenatal clinic, at Sir Sundar Lal Hospital.

Table 2 shows that more than half of the women (64.63%) belong to the age group of 18-27 years while others (≈35%) from the age group of 28-36 years.

Table 3 shows that Epigastric Pain is the most common problem among pregnant women (more than half the women ≈54% having the problem of Epigastric Pain), while Headache is secondary cause among pregnant women who attended antenatal clinic, at Sir Sundar Lal Hospital.

Residence	Frequency	Percentage	95% confidence interval limits
Rural	52	63.41	52.05-73.78
Urban	30	36.59	26.22-47.95
Total	82	100.00	—

Age group	Frequency	Percentage	95% confidence interval limits
18-27	53	64.63	53.30-74.88
28-36	29	35.37	25.12-46.70
Total	82	100.00	—

Problems related to pregnancy	Frequency	Percentage	95% confidence interval limits
Epigastric pain	45	54.88	43.49-65.90
Headache	16	19.51	11.58-29.74
Pedal edema	14	17.07	09.66-26.98
Nothing	07	08.54	02.76-22.86
Total	82	100.00	—

Problem of eclampsia	Frequency	Percentage	95% confidence interval limits
No	70	85.37	77.00-93.02
Yes	12	14.63	06.98-23.00
Total	82	100.00	—

Table 4 shows that the overall incidence of Eclampsia is 14.63% in study population regarding PIH. *A study done by Vidyadhar B Bangal, Purushottam A. Giri, Aditi S. Mahajan entitled as Maternal and Foetal Outcome in PIH: A Study from Rural Tertiary Care Teaching Hospital in India, found that the overall incidence of PIH was 8.96%, which includes preeclampsia in 7.26% and eclampsia in 1.70%.*<sup>[5]</sup>

Table 5 shows that on the basis of systolic blood pressure, >1/4<sup>th</sup> population are diagnosed with prehypertension whereas on the basis of diastolic blood pressure, 25.97% of the study population are diagnosed with stage of prehypertension remaining are come under the normal category.

Table 6 shows that 36.59% women are unaware about the cause of high BP whereas 31.71% women says that lack of exercise is measure cause of high BP.

According to Table 7, 62.20% women are agreed with that they are taking low salt diet while others are taking normal as well as high salt diet.

Table 8 shows that more than half of the women are doing regular exercise while others are not doing any exercise.

Stage of hypertension	Frequency		Percentage		95% confidence interval limits	
	SBP	DBP	SBP	DBP	SBP	DBP
Normal	59	57	71.95	74.03	60.94-81.32	62.77-83.36
Prehypertension	23	20	28.05	25.97	18.68-39.06	16.64-37.23
Total	82	82	100.00	100.00	—	—

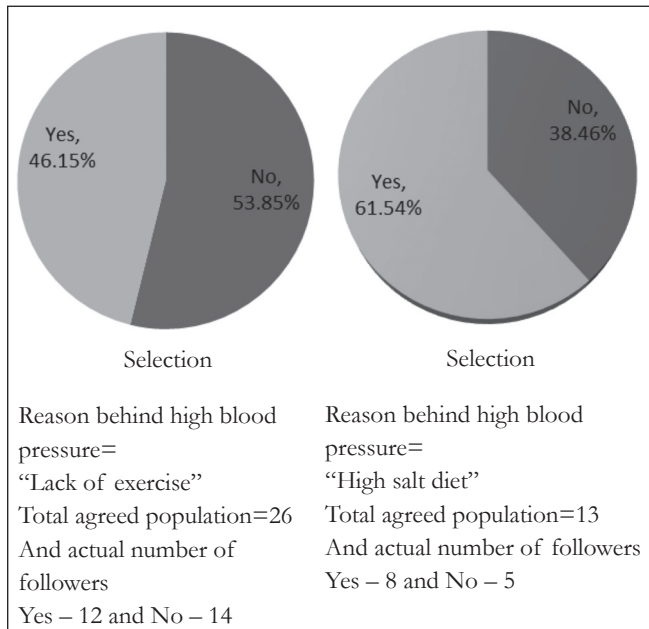
SBP = Systolic blood pressure, DBP = Diastolic blood pressure

Reason behind high BP	Frequency	Percentage	95% confidence interval limits
Don't know	30	36.59	26.22-47.95
Lack of exercise	26	31.71	21.87-42.92
High salt diet	13	15.85	08.72-25.58
Stressful life	13	15.85	08.72-25.58
Total	82	100.00	—

BP = Blood pressure

Low salt diet	Frequency	Percentage	95% confidence interval limits
Yes	51	62.20	50.81-72.68
No	31	37.80	27.32-49.19
Total	82	100.00	—

Exercise	Frequency	Percentage	95% confidence interval limits
Yes	42	51.22	39.92-62.42
No	40	48.78	37.58-60.08
Total	82	100.00	—



**Figure 1:** Association between knowledge and practices regarding high blood pressure

### Association between knowledge and practice

Figure 1 shows that there is a vast gap between self-care knowledge and preventive practices among pregnant women. Less than 50% women are doing exercise during pregnancy while they all know that lack of exercise is a cause of high BP. Only 61.54% women are taking low salt diet among all women who agreed that high salt diet is major cause of high BP.

## CONCLUSIONS

Pregnancy-induced hypertension is a common medical disorder seen associated with pregnancy, and it leads more complication when it unregistered. Maternal and fetal morbidity and mortality can be reduced by early recognition and institutional management.

### Considering the findings obtained in the study

- To prevent PIH, there must be check BP at regular interval and
- Not only educate the Pregnant Women on the symptoms of PIH but also motivate them take preventive measures as a requirement.

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