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# Impact of Clinical Pharmacist Educational Intervention on Pregnancy Induced Hypertension among Pregnant Women in a Tertiary Care Hospital

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**ABSTRACT**
Pregnancy Induced Hypertension (PIH) is hypertension in pregnancy that occurs after 20 weeks of gestation in a woman with previously normal blood pressure. The general classification of PIH during pregnancy are Gestational hypertension (without proteinuria), pre-eclampsia (with proteinuria), and eclampsia (pre-eclampsia with convulsions) and PIH is a global problem and the most common medical problem requiring special attention in the intrapartum period, with an objective of to assess the knowledge of pregnancy induced hypertension among pregnant women and to assess the impact of clinical pharmacist on pregnancy induced hypertension among pregnant women and it was a prospective study and was conducted at Basaveshwar teaching and general hospital, Kalaburagi from April to September 2022. The sample size of the study was 158. The data was collected regarding gestational week, irrespective of gravida and parity and pregnant women willing to participate were included. Whereas, Pregnant women below the age of 18 years Pregnant women who were already suffering with HTN and DMbefore pregnancyPatient who are not willing to participate. This study was resulted as maximum number of pregnant women 84 (53.2%) were belongs to the age group of 21—25 years, followed by 43 (27.2%) of pregnant women were belongs to the age group of 26—30 years 16 (10.1%) of pregnant women were belongs to the age group of ≥ 31 years and 15 (9.5%) of pregnant women were belongs to the age group of ≤ 20 years and was concluded that, the pre -test knowledge of 93% pregnant women was found to be poor knowledge of PIH, whereas only 7% of pregnant women were having moderate to good knowledge of PIH.

## I. INTRODUCTION

Pregnancy Induced Hypertension (PIH) is hypertension in pregnancy that occurs after 20 weeks of gestation in a woman with previously normal blood pressure. The general classification of PIH during pregnancy are Gestational hypertension (without proteinuria), pre-eclampsia (with proteinuria), and eclampsia (pre-eclampsia with convulsions) and there are three primary characteristics of pregnancy induced hypertension conditions; high blood pressure (a blood pressure reading higher than 140/90mmHg or a significant increase in one or both pressures), protein in the urine, abnormal edema. PIH is a global problem and the most common medical problem requiring special attention in the intrapartum period.[1]Hypertensive disordersrepresent one of themost common medicalcomplications of pregnancy.Pregnancy-induced hypertension can also be classified as mild or severe.Mild PIH is defined as new-onset hypertension (systolic blood pressure ≥ 140 mm Hg and/or diastolic blood pressure ≥ 90 mm Hg), occurring after 20 weeks of gestation. The majority of cases of mild PIH develop beyond 37 weeks' gestation, and in these cases, pregnancy outcomes are comparable to those of normotensive pregnancies. Severe PIHis defined as sustained elevated blood pressures of ≥ 160 mm Hg systolic and ≥ 110 mm Hg diastolic. [2]

The importance of improving adherence to antihypertensivemedication has been addressed by ''The seventh report ofthe Joint National Committee on prevention, detection,evaluation and treatment of high BP'' (JNC 7) andemphasis has been put on the role of all health care professionalsto improve adherence to treatment. Previousstudies have shown that introducing pharmaceutical care tohypertensive patients in community pharmacies improvedmedication adherence and patient outcomes [5]. Thetrained clinical pharmacist will provide betterclinical pharmacy services like patientcounselling, monitoring of complications, maternal andfeta loutcome, medication adherence on antihypertensive drugs and regular follow up to the antenatal clinic[6].

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**Gestational Hypertension**

Gestational hypertension has replaced the term pregnancy-induced hypertension to describe women who develop hypertension without proteinuria after 20 weeks of gestation. Gestational hypertension is a provisional diagnosis that includes women eventually diagnosed with preeclampsia or chronic hypertension, as well as women retrospectively diagnosed with transient hypertension of pregnancy. Fifty percent of women diagnosed with gestational hypertension between 24 and 35 weeks develop preeclampsia. Expectant management of mild gestationalhypertension can reduce the increased rate of caesarean delivery associated with the induction of nulliparous women who have an unripe cervix. Women who progress to severe gestational hypertension based on the degree of blood pressure elevation have worse perinatal outcomes than do women with mild preeclampsia, and require management similar to those with severe preeclampsia [8].

**DIAGNOSIS**

The diagnosisrequires that the patient have:

- Elevated blood pressure (systolic ≥140 or diastolic ≥90mm Hg)
- Previously normal blood pressures
- No protein in the urine
- No manifestations of preeclampsia - eclampsia.

**MANAGEMENT**

Regular blood pressure monitoring is necessary to ensure the blood pressure remains at 110–140/80–90 mmHg. There should be regular assessment for the development of pre-eclampsia and close surveillance of fetal growth and wellbeing. Once the blood pressure is controlled, gestational hypertension may continue to be managed with outpatient care, under close and regular review.[10]

**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 thenumber 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 andadditional supplements [11]

**PRE - ECLAMPSIA**

Preeclampsia is a serious and poorly understood complication of pregnancy, which can progress to eclampsia and maternal death, it is an important cause of maternal mortality in developing countries. Preeclampsia is a major cause of maternal mortality (15-20% in developed countries) and morbidities (acute and long-term), perinatal deaths, preterm birth, and intrauterine growth restriction. Preeclampsia occurs in an estimated one in 20 pregnancies. It can develop into eclampsia, or convulsive fits, which account for up to 10 percent of maternal deaths. From another public health perspective, it is alarming that the rate of preeclampsia has increased in worldwide especially in developed countries by 40% between 1990 and 1999 due to an increase in number of older mothers and multiple births, conditions known to increase the risk of preeclampsia. An estimated 50,000 women worldwide die annually from preeclampsia.

**DIAGNOSIS OF PRE- ECLAMPSIA:**

1) **Diagnostic Criteria for Preeclampsia:**

**Preeclampsia**Blood pressure: 140 mm Hg or higher systolic or 90 mm Hg or higher diastolic after 20weeks ofgestation in a woman with previously normal blood pressureProteinuria: 0.3 g or more of protein in a 24-hour urine collection(Usually corresponds with 1+ orgreater on a urine dipstick test)

**2) Severe preeclampsia**

Blood pressure: 160 mm Hg or higher systolic or 110 mm Hg or higher diastolic on two occasions atleast six hours apart in a woman on bed rest

Proteinuria: 5 g or more of protein in a 24-hour urine collection or 3+ or greater on urine dipsticktesting of two random urine samples collected at least four hours apart

Other features: oliguria (less than 500 mL of urine in 24 hours), cerebral or visualdisturbances,pulmonary edema or cyanosis, epigastric or right upper quadrant pain, impaired liver function,thrombocytopenia, intrauterine growth restriction [14].

**MANAGEMENT**

Currently, the only definitive treatment for pre-eclampsia is delivery of the fetus, although ongoing work on novel therapies seems promising. Management consists of preconception counselling, perinatal blood pressure control and management of complications, timely delivery of the fetus and

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postpartum surveillance. The American Congress of Obstetricians and Gynaecologists (ACOG) recommends preconception counselling for any woman who has previously had pre-eclampsia. For women with preeclampsia without severe features at less than 37 weeks of pregnancy, expectant management is suggested; after 37 weeks, delivery rather than observation is suggested. For women with pre-eclampsia with severe features at or beyond 34 weeks or in those with unstable maternal or fetal conditions irrespective of gestational age, maternal stabilization and delivery are recommended. Women with pre-eclampsia with severe features at less than 34 weeks who are otherwise stable are recommended to receive corticosteroids to promote fetal lung maturity and to continue pregnancy at a facility with adequate maternal and neonatal intensive care. For women with eclampsia and pre-eclampsia with severe features, the ACOG strongly recommends administration of parenteral magnesium sulfate, with continuation intraoperatively and postpartum for women undergoing caesarean section.[16].

**ECLAMPSIA**

An eclamptic seizure may be preceded by increasingly severe preeclampsia, or it may appear unexpectedly in apatient with minimally elevated blood pressure and noproteinuria. Blood pressure is only mildly elevated in30 to 60 percent of women who develop eclampsia. Aneclamptic seizure usually lasts from 60 to 90 seconds,during which time the patient is without respiratoryeffort. A postictal phase may follow with confusion, agitation, and combativeness. The timing of an eclampticseizure can be antepartum (53 percent), intrapartum (19 percent), or postpartum (28 percent). Latepostpartum (more than 48 hours after delivery) onsetof eclampsia was traditionally thought to be rare; however, a study of 29 cases of postpartum eclampsiademonstrated that 79 percent occurred in the late post - partumperiod.[8]

**Signs and symptoms**

The signs and symptoms of eclampsia include seizures, extreme agitation, and unconsciousness. Themajority of women experience the following preeclampsia symptoms before the seizure: nausea andvomiting, stomach aches, epigastric discomfort, headaches (due to stretching of the liver capsule), swelling ofthe hands and face, and difficulties with eyesight including loss of vision, double vision, blurry vision, andmissing portions of the visual field.

**HELLP syndrome**

HELLP syndrome is one of the fatal consequences of eclampsia. Diagnosis of HELLP syndrome is made basedon the presence of an obstetric triad of serum bilirubin over 1.2 mg/dl, presence of schistocytes onperipheral smear, low serum haptoglobin or increased LDH, and severe anaemia unrelated to blood loss arerequired for the diagnosis of haemolysis; increased liver enzyme levels; and less than 100,000 plateletsin the blood.[17]

**DIAGNOSIS**

When a woman presents with hypertension, proteinuria, and convulsions, mostclinicians would agree that thediagnosis of eclampsia is clear. However, although hypertension is the hallmarkfor the diagnosis of eclampsia, it may beabsent in up to 25% of cases. Furthermore,severe hypertension is morecommon in women who developedantepartum eclampsia than in women with postpartum preeclampsia.The most common finding duringthe neurologic examination following aseizure is altered mental status anddeficits of memory or visualperception.[18]

**MANAGEMENT**

Supportive care should be given to prevent serious maternal injury and aspiration, assess and establish airway patency, ensure maternal oxygenation, and start immediately magnesium sulfate according to the protocols. The next step in the management of eclampsia is to reduce blood pressure. The goal is considered systolic BP between 140 and 160mm Hg and diastolic BP between 90 and 105mm Hg. This can be achieved with bolus 5 to 10mg doses of hydralazine or labetalol (20 to 40mg intravenously) every 15minutes as needed. [20]

**• Observation for fetal:**

- FHS.

Magnesium sulfate is the drug of choice because it is more effective in preventing recurrent seizures than phenytoin (Dilantin) or diazepam (Valium)[7]

## II. SUBJECTS AND METHODS:

**OBJECTIVES OF THE STUDY:**

**General objective:**

1. To Assess the Knowledge of Pregnancy induced hypertension among pregnant women

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2. Assess the impact of clinical pharmacist on pregnancy induced hypertension among pregnant women

**Specific Objectives:**

- Demographic Data
- Socioeconomic Status
- Stage of Pregnancy
- Parity, Gravida
- Prevalence of risk factors among Pregnancy induced hypertension
- Knowledge regarding gestational hypertension, pre – eclampsia and eclampsia
- To educate them regarding gestational hypertension, pre-eclampsia and eclampsia
- To assess the impact of clinical pharmacist in educational intervention.

## METHODOLOGY

### STUDY APPROVAL:

The study protocol was prepared and submitted to the Ethics Committee on Human subject's research for ethical clearance. The study was approved by institutional ethics committee and issued ethical clearance certificate.

### CONSENT LETTER

The study was initiated at Basaveshwar teaching and general hospital, Kalaburagi after obtaining a consent letter fromMedical superintendent of Basaveshwar hospital.

### STUDY MATERIALS

The following study materials were used for the study -

A) Data Collection form.
B) Consent from.
C) Questionnaires.
D) Information leaflets.

### STUDY SITE

The Study was conducted at Basaveshwar teaching & general hospital in Kalaburagi.

### STUDY DESIGN

The study is a prospective educational interventional study.

### STUDY PERIOD

This study was conducted for a period of 6 months.

### STUDY CRITERIA

The study was carried out by considering following criteria

### INCLUSION CRITERIA:

- Pregnant women above the age of 18 years
- Pregnant women below 20 weeks of pregnancy
- Pregnant women irrespective of gravida and parity
- Pregnant women willing to participate in the study

### EXCLUSION CRITERIA:

- Pregnant women below the age of 18 years
- Pregnant women who were already suffering with HTN and DM before pregnancy
- Patient who are not willing to participate in the study

### STUDY PROCEDURE:

The study was conducted atBasaveshwar teaching and general hospital inKalaburagi with the prior permission from the Medical superintendent of Basaveshwar teaching and general hospital. The pregnant women's were enrolled into the study by considering the inclusion and exclusion criteria after taking their written consent to participate in the study.

### ASSESSMENT OF CASE CONTROL STUDY: -

All pregnant women's who have came for pre - natal check- up at Basaveshwar teaching and general hospital are enrolled into the study provided they are eligible as per the inclusion criteria mentioned above. Pregnant women's(subjects) are asked questions from the questionnaire. The questionnaire contains all the information which are under our prospective educationalinterventional study of pregnancy induced hypertension in thedata collection form is filled by asking questions from the questionnaire with data provided by pregnant women's as well aspregnant women OPD cards.

### ANALYSIS OF DATA:

The data collected from questionnaire are analysed using statistical method by entering the data into: IBM SPSS (25.0 version software). For quantitative data analysis ANOVA and t- tests were applied and for qualitative data analysis chi-square test was applied for testing of statistical significance. If P-value was less than 0.05 considered as significant

## III. RESULTS AND DISCUSSIONS

The study was a hospital based prospective matched case control study by analysing primary data from the antenatal, prenatal wards at BASAVESHWAR TEACHING & GENERAL HOSPITAL KALABURAGI,

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KARNATAKA, India. The results of this study are based on prospective study, involving 158 pregnant women. Only pregnant women below 20 weeks of gestation were selected as cases. This study was conducted for a period of 6 months from April 2022 – September 2022.

The study results have been tabulated and presented in frequency and percentage. The association between the independent variables and the pregnant women's was statistically, analyzed using statistical method by entering the data into SPSS package (25.0 version software) and this study was assessed for quantitative data analysis ANOVA and t- tests were applied and for qualitative data analysis chi-square test was applied.

**Table No.1: Maternity status wise distribution of pregnant women**

| Maternity status | Number of pregnant women | Percentage |
|---|---|---|
| **1st Trimester** | 106 | 67.1 |
| **2nd Trimester** | 40 | 25.3 |
| **3rd Trimester** | 12 | 7.6 |
| **Total** | 158 | 100.0 |

Out of 158 sample pregnant women; 106 (67.1%) of pregnant women's maternity status was 1st trimester. Followed by 2nd Trimester pregnant women were40 (25.3%) and 3rd Trimester were 12 (7.6%).

**Pie diagram represents type of family wise distribution of pregnant women**

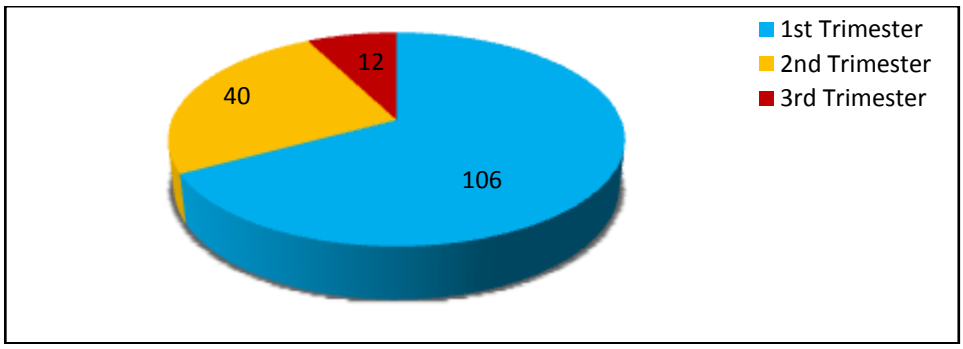


**Table No.2: Gravida wise distribution of pregnant women**

| Gravida | Number of pregnant women | Percentage |
|---|---|---|
| **1** | 66 | 41.8 |
| **2** | 39 | 24.7 |
| **3** | 45 | 28.5 |
| **≥4** | 8 | 5.0 |
| **Total** | 158 | 100.0 |

In the present study, 66 (65.0%) of pregnant women'sgravida was observed 1, 39 (24.7%)of pregnant women's gravida was observed 2, 45 (28.5%) of pregnant women's gravida was observed 3 and 8 (5.0%) of pregnant women's gravida was observed gravida ≥ 4

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**Simple bar diagram represents gravida wise distribution of pregnant women**

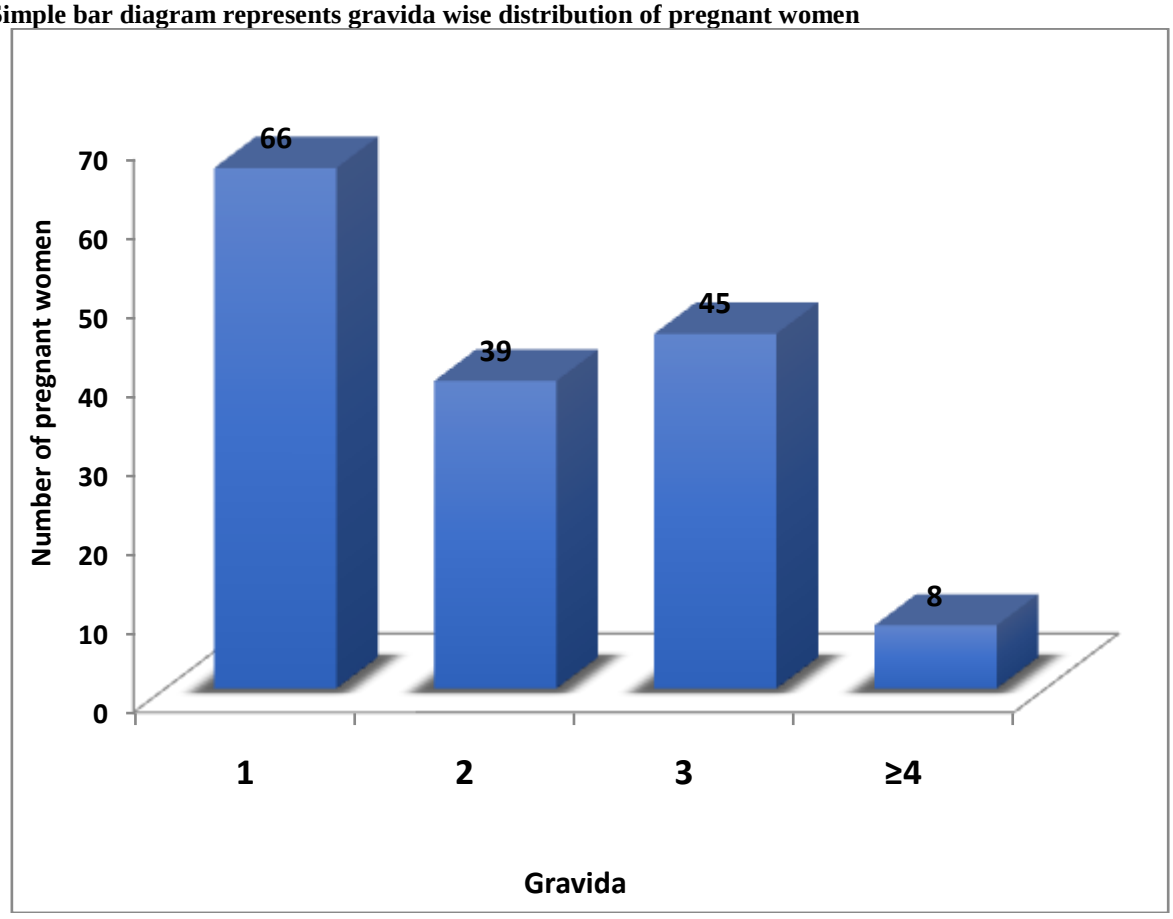


**Table No.3: Pre-Test knowledge of PIH wise distribution of pregnant women**

Knowledge of pregnancy induced hypertension was assessed by 20 questions and the scores were distributed percentage wise

| Percentage of Knowledge scores | Categories | No. of participants | Percentage |
|---|---|---|---|
| **76—100%** | **Good** | 2 | 1.3 |
| **50—75%** | **Moderate** | 9 | 5.7 |
| **< 50%** | **Poor** | 147 | 93.0 |
| **Total** | -- | 218 | 100.0 |

In the present study out of 158 sample of pregnant women, 147 (93.0%) of pregnant women had poor knowledge of PIH, 9 (5.7%) of pregnant women had moderate knowledge of PIH and 2 (1.3%) of participants had good knowledge of PIH

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**Simple bars represent pre-test knowledge of PIH wise distribution of pregnant women**

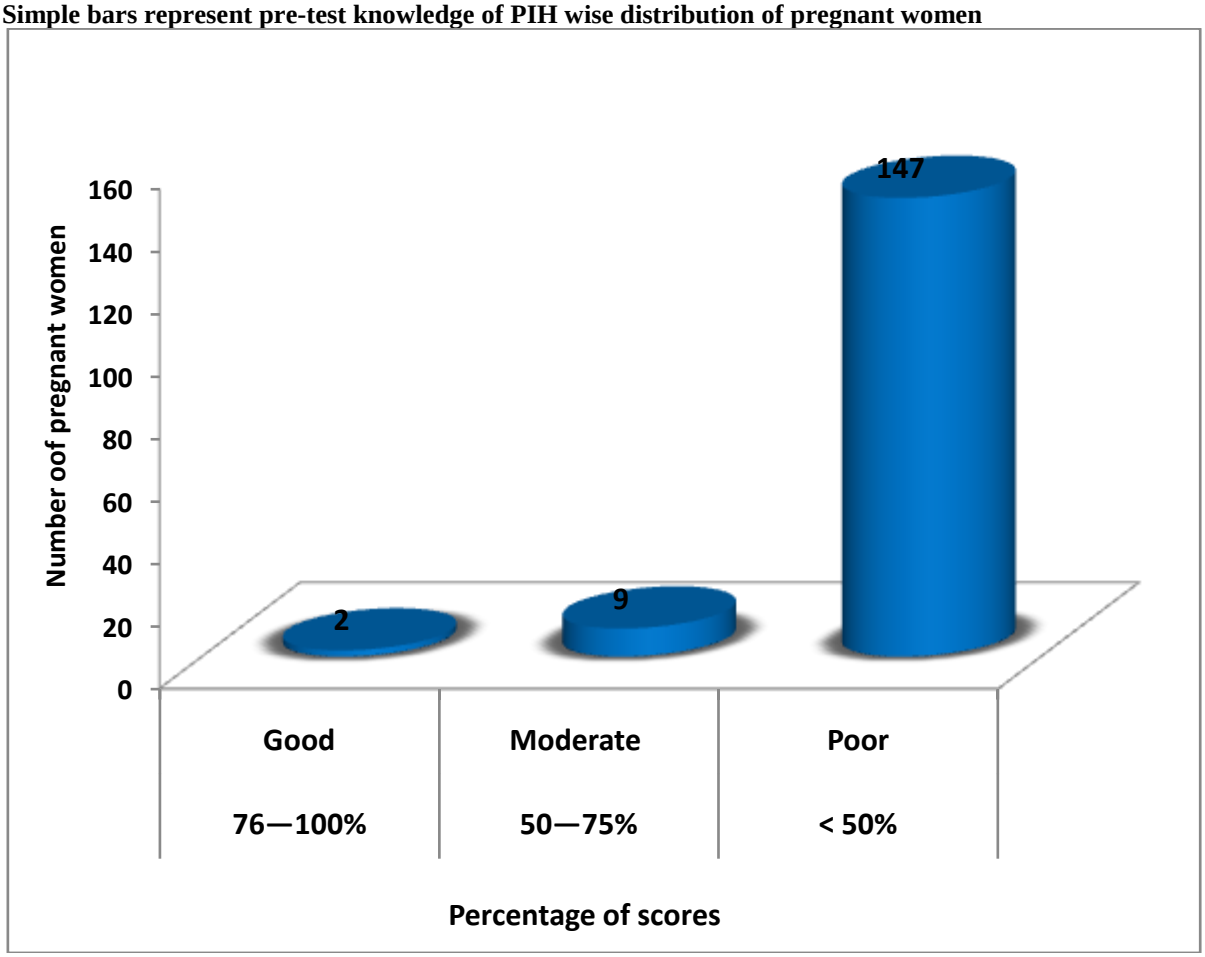


**Table No.4: Post-Test knowledge of PIH wise distribution of pregnant women**

| Percentage of Knowledge scores | Categories | No. of participants | Percentage |
|---|---|---|---|
| **76—100%** | **Good** | 51 | 32.3 |
| **50—75%** | **Moderate** | 94 | 59.5 |
| **< 50%** | **Poor** | 13 | 8.2 |
| **Total** | -- | 218 | 100.0 |

In the present study, 94 (59.5%) of pregnant women had moderate knowledge of PIH, 51 (32.3%) of pregnant women had good knowledge of PIH and 13 (8.2%) of participants had poor knowledge of PIHhas observed in post-test (intervention).

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**Simple bars represent post-test knowledge of PIH wise distribution of pregnant women**

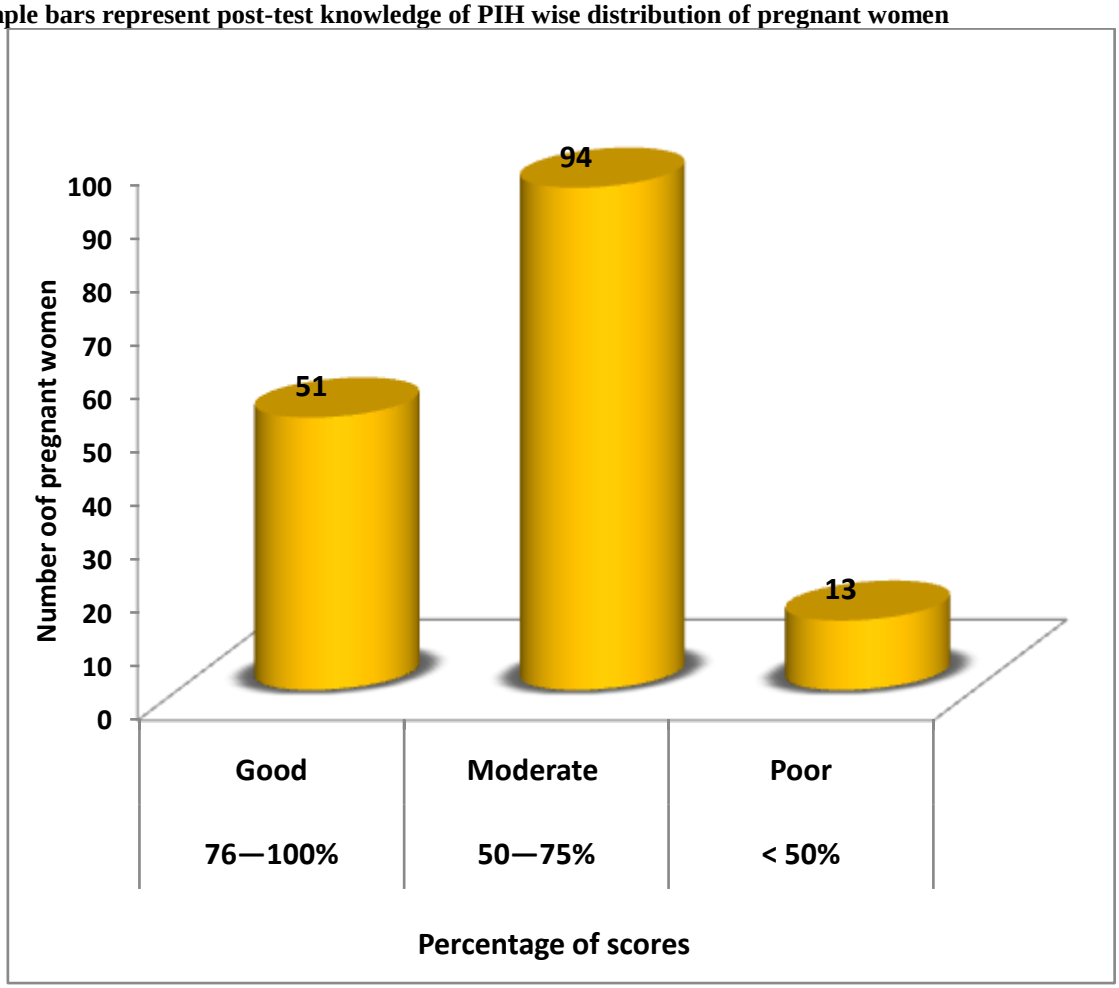


**Table 5: Comparison of knowledge scores on PIH between pre and post-test [intervention (health education)]**

| Area of knowledge | Pre-test scores | Post- test scores | Difference score (%) | t –test value | P-value & significance |
|---|---|---|---|---|---|
| | Mean ± SD | Mean ± SD | | | |
| PIH (max scores-8) | 2.35 ± 1.79 (29.4%) | 6.20 ± 1.39 (77.5%) | 3.85 (62.1%) | t = 23.41 | P = 0.000, VHS |
| Pre –Eclampsia (max. scores-6) | 1.36 ± 1.35 (22.7%) | 4.62 ± 1.12 (77.2%) | 3.26 (70.6%) | t = 24.17 | P = 0.000, VHS |
| Eclampsia (max scores-6) | 0.57 ± 0.87 (9.5%) | 3.11 ± 1.54 (51.8%) | 2.54 (81.7%) | t = 18.81 | P = 0.000, VHS |
| Over all Knowledge (max. scores-20) | 4.38 ± 3.31 (21.5%) | 13.93 ± 3.24 (69.6%) | 9.55 (68.5%) | t = 27.35 | P = 0.000, VHS |

NS= not significant, S=significant, HS=highly significant, **VHS=very highly significant**

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In the pre-test knowledge scores on eclampsia was very low scores (having less knowledge) that was 9.5% and on PIH 29.4%, Pre-eclampsia 22.7% and overall scores of knowledge on PIH was 21.5%. In the post-test knowledge scores on PIH was 77.5%, on Pre-Eclampsia 77.2% and on Eclampsia 51.8%. Post - test overall knowledge scores was 69.6%.

Study reveals that, there was statistically very highly significant difference of mean knowledge scores on PIH, Pre-Eclampsia and Eclampsia between pre and post-test ($P<0.001$). The mean knowledge scores on PIH, Pre-Eclampsia and Eclampsia of pregnant women in post-test was significantly more as compare to pre-test mean knowledge score, the post-test knowledge score was increased 62.1%, 70.6% and 81.7% respectively.

There was statistically very highly significant difference of overall mean knowledge scores on PIH between pre and post-test ($P<0.001$).The post-test overall knowledge score was increased 68.6%.

**The intervention that was the health education regarding PIH given to the pregnant women was significantly effective.**

## DISCUSSIONS

In the present study, majority of PIHpatients were fall under the age group of26-30 years and observed that theincidence of hypertensive disorders inpregnancy were occurred in this age group.However, in a previous studyGoonewardene et al reported thatyounger teenage mothers (≤ 19 years) hada higher risk of gestational hypertensionand preeclampsia. Another study byManjusha sajith et al reported that theage group was 18-22 years and also theyreported that age was an importantinfluencing factor on the incidence ofhypertensive disorders.In the present study it was observed that19.4% had family history of hypertensionand diabetes. In a previous study Kirsten Duckitt et al observed that the positivefamily history was found to be a significantrisk factor of PIH and also that risk of preeclampsia was increased in women withprevious history of pre eclampsia, preexisting diabetes and a family history of PIHor pre eclampsia.In the present study, patient's medicationadherence was assessed and the scoreswere compared as medication possessionratio and the results showed that after intervention, 86.1% were adhered tomedications and the remaining 13.9%patients were non adherent. However, theprevious study done by Rahmathulla et al reported that baseline participantsexhibited poor adherence to themedications. It was in contrast to ourfindings, their results shows thatinadequate blood pressure control at theend of the study, however in the samestudy showed that the patients who hadreceived extensive counseling from apharmacist regarding the diseasemanagement showed a greaterimprovement in medication adherence.Our study provided a better insight ofknowledge of patients about the disease,medication use, symptoms of PIH, and awareness of PIH, risk factors, diet, and physicalexercise was improved after patient education.Before pharmacist education, 86.1% were unawareabout PIH and after pharmacist education theknowledge of PIH significantly improved in 97.2%.Similarly the previous studies also found thatpatient counseling was effective in improvingpatients knowledge towards the diseasemanagement and also addresses the pharmacistsrole on effective participation in the management ofhypertensive patients as an essential supplement totraditional physician only mode. The previous studies were reported that theknowledge on PIH through patient education wasincreased significantly after patient counseling . The regular monitoring of blood pressure andfollow up to the antenatal clinic was observed afterpatient education. It recommends the importanceof patient education to achieve better therapeuticoutcomes. The interventions should include strongeducational components with baseline individualface to face counseling by the pharmacist. This helped patients to develop better knowledgeon hypertension and determination in preventingthe hypertension. The previous studies reportedthat significant reduction in blood pressure wasachieved after patient education that results inreduced risk of maternal morbidity and mortality.

## IV. CONCLUSION AND SUGGESTION

The age distribution in pregnant women shows that majority of pregnant women were in the age of 21 – 30 %, which is a proper gestational age for the pregnant women.About 1/3$^{rd}$ of the pregnant women's were of 3$^{rd}$&≥4$^{th}$gravida stage, this increased no. of pregnancies may lead to population burden on the society. Hence, it still shows that there is a need of education in women's regarding population control.The education status of the pregnant women reveals that about 75% of the pregnant women were having the secondary

education and below secondary education. Therefore, it shows that our society is still not much concerned about the female education.

Majority of Pregnant women's were from the middle class & lower middle class according to socio – economic status wise study.The blood pressure of the pregnant women reveals that majority of the pregnant women were having Systolic B.P. ≤ 140 mm/hg &Diastolic B.P. was ≤ 90mm/hg.The pre -test knowledge of 93% pregnant women was found to be poor knowledge of PIH, whereas only 7% of pregnant women were having moderate to good knowledge of PIH and the assessment of Post – Test Knowledge of PIH after that intervention of the pharmacist revealed that the pharmacist made a good impact in improving the knowledge of about 2% of women's to moderate too good.

The Statistical analysis of Pre – test to Post – Test knowledge of PIH has shown very highly significant improvement.Finally, we conclude that the intervention of pharmacist has shown significant improvement in the knowledge of PIH in pregnant women and this may reduce the complications, morbidity, and mortality due to PIH.

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**CONFLICT OF INTEREST**

The authors have no conflicts of interest to declare that are relevant to the content of this article.

## REFERENCES

[1]. Jennifer Ribowsky and Caitlin Henderson. Pregnancy induced hypertension, 2012;22(5): 28-32.

[2]. Kaveriben Pandya, Anjali Prajapati, Trupti Gajjar and Reshma Rawat. A Study to Assess the Impact of Pregnancy Induced Hypertension on Fetal Outcomes among PIH Patients Delivered at Tertiary Care Hospital, Dadra & Nagar Haveli,International Jof Health Sciences and Research 2021;11(1): 268-271.

[3]. Manjusha sajith,Vandana nimbargi,Amit modi, Ronak sumariya and Atmarampawar. Incidence of pregnancy induced hypertension and prescription pattern of antihypertensive drugs in pregnancy. International J of Pharma Sciences and Research, 2014;5 (4): 163-170.

[4]. Manuel Morgado, Sandra Rolo, Miguel Castelo-Branco. Pharmacist intervention program to enhance hypertension control: a randomised controlled trial Int J Clin Pharm 2011; 33:132–140.

[5]. Lavanya S, Jeevana Jyothi B, Lochana G, Minu Kurian, Surya Renjan, Sruthi P Jose and Krishna Kumar D. Impact of Clinical Pharmacist education on Knowledge of Pregnancy Induced Hypertension among Pregnant women. International Jof Pharmacy Teaching & Practices, 2015; 6(4): 2603 – 2608.

[6]. Lalita Nemani. Hypertensive Disorders in Pregnancy, Indian J of Cardiovascular Disease in Women, 2018; 3 (2) :68-77.

[7]. Lawrence Leeman& Patricia Fontaine,Hypertensive Disorders of Pregnancy, American Family Physician, 2008; 78(1).

[8]. Alessia Mammaro, Sabina Carrara, Alessandro Cavaliere, Santina Ermito, Angela Dinatale, Elisa Maria Pappalardo, MariapiaMilitello and Rosa Pedata. Hypertensive Disorders in Pregnancy, Jof Prenatal Medicine, 2009; 3(1): 1-5.

[9]. Amanda Beech and George Mangos, Management of hypertension in pregnancy, AustPrescr, 2021;44(5):148 – 151. Also available at nps.org.au/australian-prescriber.

[10]. Vineeta Singh and Manushi Srivastava, Associated risk factors with pregnancy-induced hypertension: A hospital-based KAP study, International J of Medicine and Public Health, 2015; 5(1).

[11]. Uzma Shamsi, Sarah Saleem and Noureen Nishter Epidemiology and risk factors of preeclampsia; an overview of observational studies, Al Ameen J Med Sci

[12]. 2013; 6(4) :292-300.

[13]. The royal women hospital Victoria, Australia Guidelines on Pre – eclampsia: management 2020; 1-10.

[14]. Lana k. wagner, Diagnosis and Management of Preeclampsia, American Family Physician 2004;70(12).

[15]. Sarosh Rana, Elizabeth Lemoine, Joey P. Granger and S. Ananth Karumanchi, Compendium on the pathophysiology and treatment of hypertension,

PreeclampsiaPathophysiology, Challenges, and Perspectives; 2019: 1094 – 1112.

[16]. Elizabeth. A. Phipps, Ravi Thadhani, Thomas Benzing, and S. Ananth Karumanchi, Pre-eclampsia: pathogenesis, novel diagnostics and therapies, 2019; Nat Rev Nephrol ;15(5):1-41.

[17]. Shivani Akre , Kapil Sharma,SwarupaChakole , Mayur B. Wanjari, Eclampsia and Its Treatment Modalities: A Review Article, 2022: 1-5.

[18]. Michal FishelBartal, Baha M. Sibai, Eclampsia in the 21st century, American Journal of Obstetrics &Gynecology ,2022:1237 – 1253.

[19]. Marilyn J. Cipolla, Richard P. Kraig, Seizures in Women with Preeclampsia: Mechanisms andManagement, Department of Neurology, University of Vermont and Department of Neurology, University of Chicago,2011;22(02):1-18.

[20]. Rose Gasnier, Eclampsia: an overview clinical presentation, diagnosis and management,MOJ Women's Health. 2016;3(2):182–187.