Research Article

An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry

Dr. Jayasree[1]; Dr. Prasath[2]; Dr. Kishore Kumar[3]; Dr.Narayanan[4]

[1] Dean, Takshashila Medical College, Takshashila University
[2] Medical Superintendent, Takshashila Medical College Hospital
[3] Assistant Professor, Dept. Of Physiology, Takshashila Medical college, Takshashila Univesity
[4] Medical Officer, PHC Kirumampakkam

🔓 OPEN ACCESS

Corresponding Author:

Dr. Kishore Kumar
Assistant Professor, Dept. Of Physiology, Takshashila Medical college, Takshashila Univesity

ABSTRACT

Pregnancy brings about significant physiological and anatomical changes in a woman's body. Among the many medical issues that can arise during pregnancy, hypertension is the most common, affecting 2-3% of pregnancies. Previously known as PET (pre-eclamptic toxaemia), it is now referred to as Pregnancy-Induced Hypertension (PIH). Complications related to PIH have been on the rise globally, with approximately 1500 women succumbing to its effects daily. PIH stands as a major health concern, contributing significantly to maternal and perinatal morbidity and mortality.

According to the World Health Organization (WHO), at least one woman dies every seven minutes due to complications arising from hypertensive disorders during pregnancy. Severe hypertension not only increases the risk of cardiac failure and cerebral vascular accidents in expectant mothers but also poses threats to the foetus, including poor placental oxygen transfer, growth restriction, preterm birth, placental abruption, stillbirth, and neonatal death.

The reported incidence of PIH is 5-10%, and despite efforts by the federal ministry of health to reduce maternal and newborn morbidity and mortality, there has been an upward trend in morbidity and mortality attributed to PIH.

In this study, we adopted a descriptive approach and utilized convenience sampling to select 30 antenatal mothers as study subjects. The research was conducted at the Primary Health Center in Kirumampakkam, Puducherry, and data was collected through a structured questionnaire. Additionally, we organized an educational program by providing pamphlets to the antenatal mothers.

The results revealed that 66.7% of the antenatal mothers exhibited poor knowledge regarding pregnancy-induced hypertension, 30% had moderate knowledge, and only 3.3% had adequate knowledge. Notably, 93.3% of the antenatal mothers belonged to rural communities, indicating a lack of adequate knowledge concerning pregnancy-induced hypertension.

In conclusion, the majority of antenatal mothers in the study had poor knowledge about pregnancy-induced hypertension. Demographic variables were significantly associated with the level of knowledge among antenatal mothers. This study underscores the importance of raising awareness and educating expectant mothers about pregnancy-induced hypertension, especially in rural communities, to mitigate its impact on maternal and perinatal health.

Keywords: *Pregnancy-Induced Hypertension (PIH); Antenatal Mothers; Hypertensive Disorders in Pregnancy*

Dr. Jayasree *et al.* An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*

1061

INTRODUCTION:

Pregnancy is a significant phase in a woman's life, filled with unique experiences and often accompanied by joy [1]. It exemplifies a woman's remarkable ability to nurture life while providing a connection to the future. Ensuring maternal well-being is a global imperative, especially as pregnancy involves profound physiological and anatomical changes [2].

Maternal and Child Health (MCH) programs have been pivotal in improving maternity services. They trace their origins back to the early 1900s when midwives and birth attendants in rural areas received formal training [3]. The Mudaliar Committee's recommendations in 1962 aimed to expand MCH centers, emphasizing the importance of one Auxiliary Nurse Midwife (ANM) per 10,000 people. The Indian government established a national policy for children and a children's board to support these initiatives [3].

Over time, the Indian government's efforts, notably through the MCH program, have contributed to a reduction in maternal mortality and morbidity [2]. However, Pregnancy-Induced Hypertension (PIH) remains a common and serious concern during pregnancy, affecting 2-3% of pregnancies and presenting various complications [4].

PIH represents a significant challenge in the field of obstetrics, standing as one of the primary causes of maternal and perinatal morbidity and mortality [5]. Shockingly, the World Health Organization (WHO) reports that a woman dies every seven minutes due to complications associated with hypertensive disorders during pregnancy [5].

Need for the Study:

Pregnancy-Induced Hypertension (PIH) is a life-threatening condition during pregnancy, associated with various adverse outcomes, including premature delivery, intrauterine growth restriction (IUGR), placental abruption, intrauterine fetal demise, and maternal morbidity and mortality (6). Despite these risks, many expectant mothers lack awareness of PIH (6). Preserving maternal health is a fundamental aspect of the Millennium Development Goals (7). This study highlights the need to raise awareness, especially in rural communities, to mitigate the impact of PIH.

Problem Statement:

"An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry."

Objectives:

- To evaluate the awareness and knowledge of expectant mothers regarding Pre-Eclampsia.
- To identify any associations between the knowledge of expectant mothers and various demographic variables.
- To introduce and implement an educational initiative aimed at improving awareness of Pre-Eclampsia.

Hypotheses:

There will be no significant associations between the knowledge of expectant mothers and related demographic variables.

Methodology

This quantitative study adopted a descriptive research approach to assess antenatal mothers' knowledge of PIH. The research design was descriptive, conducted at the Primary Health Center in Kirumampakkam, Puducherry, focusing on antenatal mothers visiting on Wednesdays. A sample of 30 antenatal mothers was selected using convenient sampling. Inclusion criteria encompassed gestational weeks from 24 to 40, willingness to participate, and the ability to read and write in English and Tamil. Exclusion criteria included inability to read or write in these languages and unwillingness to participate. A structured questionnaire collected data, covering demographic variables and knowledge of PIH. Data analysis employed various statistical methods, including numbers, percentages, frequencies, means, standard deviations, Mann-Whitney tests, and Kruskal-Wallis tests.
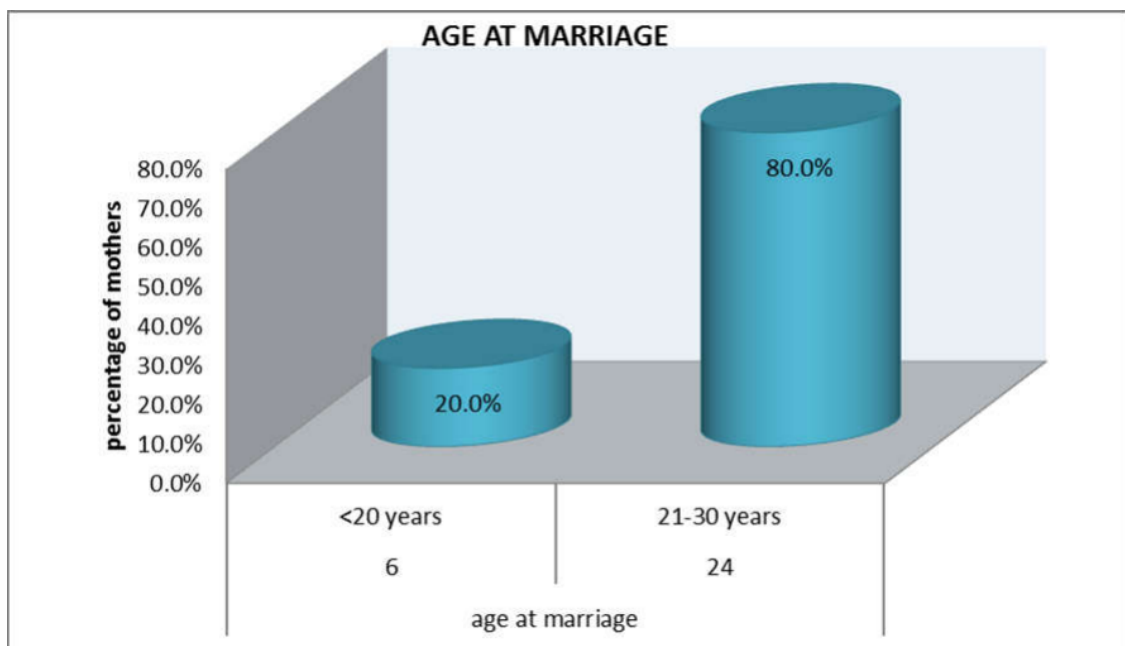
DATA ANALYSIS AND INTERPRETATION

- Descriptive statistics involved frequency and percentage distributions for demographic data.
- Inferential statistics included paired and unpaired 't' tests to compare data between two groups. One-way ANOVA explored the association between mean knowledge improvement and selected demographic variables.

Result:

TABLE 1.1: PERCENTAGE DISTRIBUTION OF AGE AT MARRIAGE.

S.no.	Age at marriage (in years)	Number	Percentage (%)
1	<20 years	6	20.0%
2	21-30 years	24	80.0%

Dr. Jayasree *et al.* An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*
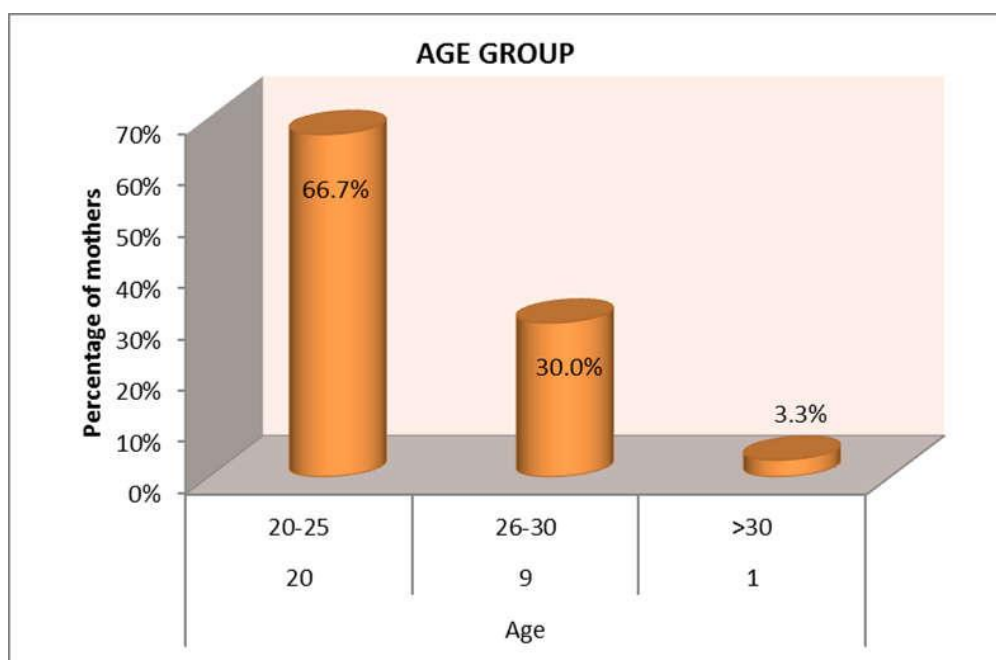
1062

FIGURE 1.1: Distribution of age at marriage.

INFERENCE:

- Distribution of age at marriage shows that 80% (24) of antenatal mothers were married at 21-30 years of age, 20% (6) of mothers were married at

- It has been concluded that majority of antenatal mothers were married at

- Still 20% of mothers are at high risk because they are married at below 20 years of age

TABLE 1.2: DISTRIBUTION OF AGE AMONG ANTENATAL MOTHERS IN YEARS.

S.no.	Age (in years)	Number	Percentage (%)
1	20-25 years	20	66.7%
2	26-30 years	09	30.0%
3	>30 years	01	3.3%

FIGURE-1.2: Distribution of age among antenatal mothers.

Dr. Jayasree *et al.* An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*

1063

INFERENCE:

• Table 1.1 shows that age distribution among all the antenatal mothers were from 20-25 is 66.7% (20), antenatal mother between 26-30 years were 30% (9), mothers above >30 years were 3.3% (1).

• It has been concluded that the majority of the antenatal mothers were between the age of 20-25 years.

• It means most of the antenatal mothers are well aware of correct age of marriage & it's a welcome sign to reduces the risk complications

TABLE 1.3: PERCENTAGE DISTRIBUTION OF AREA OF RESIDENCE:

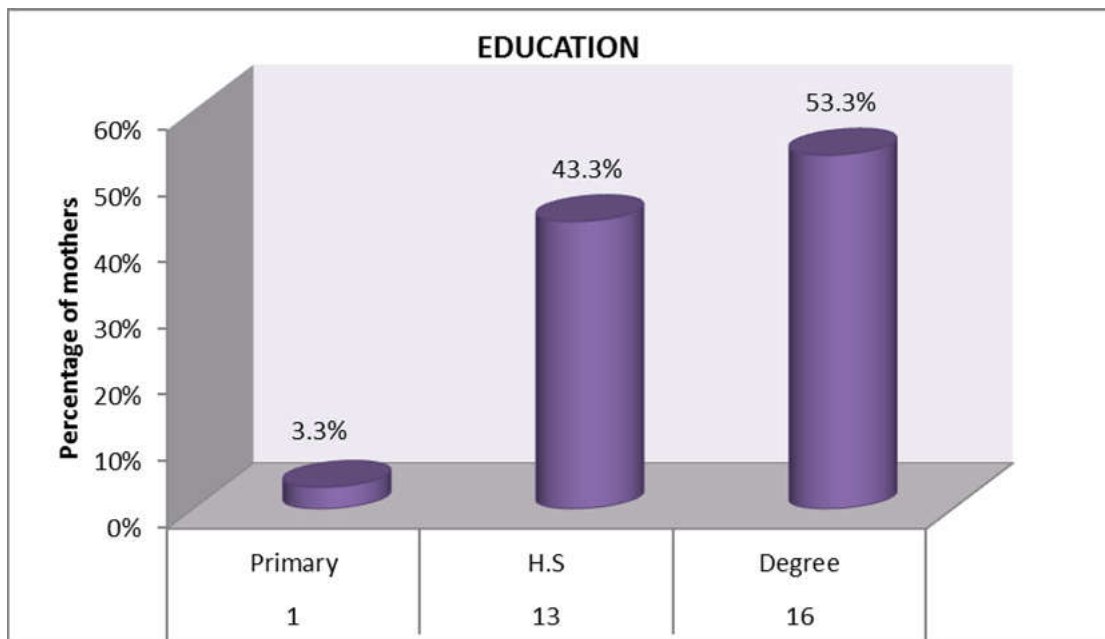| S.no.	Residence	Number	Percentage (%)
1	Urban	2	6.7%
2	Rural	28	93.3%
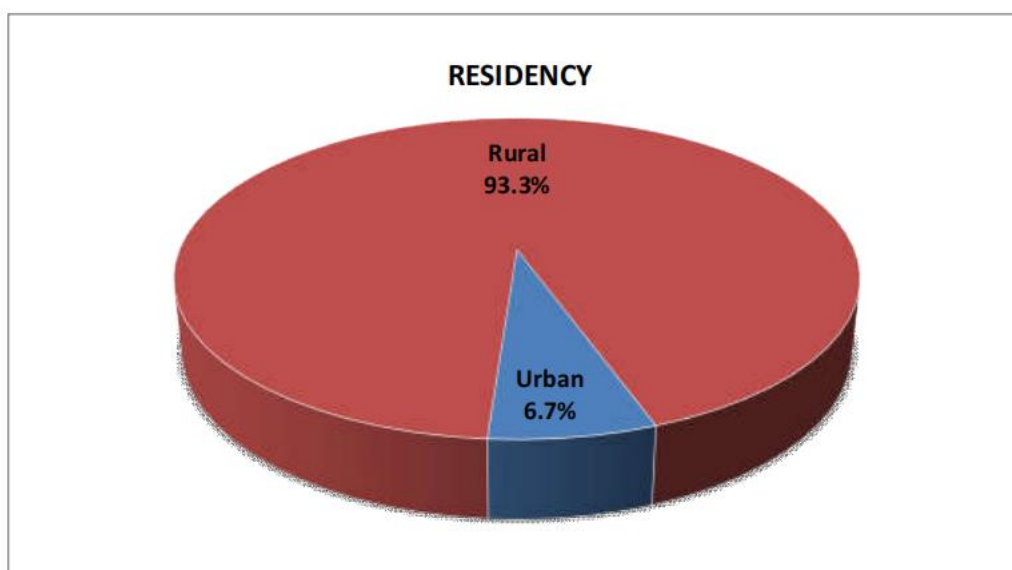
FIGURE 1.3: Distribution of area of residence.

INFERENCE:

• Regarding the distribution of area of residency, it was observed that 6.7% (2) of antenatal mothers were belonged to urban, 98.3% (28) of mothers belonged from rural community.

• It has been concluded that majority of antenatal mothers were from rural area.

• It's a welcome sign that antenatal mothers from rural area are voluntarily coming for the regular antenatal checkup

TABLE 1.4: DISTRIBUTION OF EDUCATIONAL STATUS.

S.no.	Education	Number	Percentage (%)
1	Primary	1	3.3%
2	H.S	13	43.3%
3	Degree	16	53.3%

Dr. Jayasree *et al.* An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*
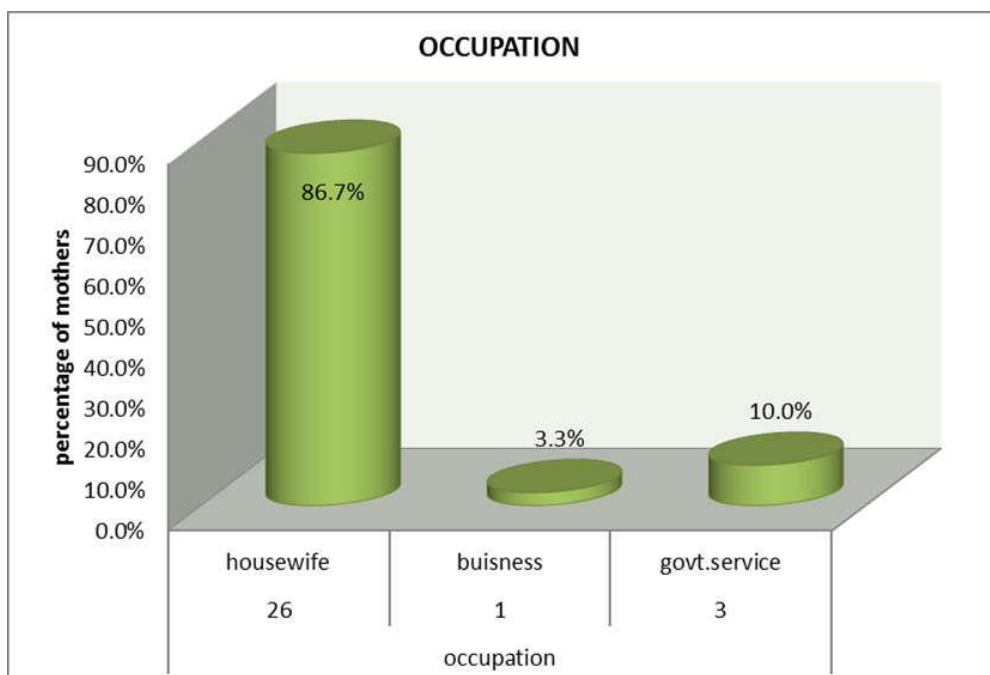
1064

FIGURE 1.4: Distribution of educational status.

INFERENCE:
• Education status showed that about 3.3% (1) of antenatal mothers had primary education, 43.3% (13) of mothers had higher education, 53.3% (16) of mothers had degree education.
• It has been concluded that majority of the antenatal mothers had degree education.
• It shows that literacy rate of the mothers is improved.

TABLE 1.5: DISTRIBUTION OF OCCUPATIONAL STATUS OF ANTENATAL MOTHERS.

S.no.	Occupation	Number	Percentage (%)
1	Housewife	26	86.7%
2	Business	1	3.3%
3	Govt. service	3	10.0%

FIGURE 1.5: Distribution of occupational status of antenatal mother.

Dr. Jayasree *et al.* An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*

1065

INFERENCE:
• Occupational status is about 3.3 % (1) of antenatal mothers were doing business, 10.0% (3) of mothers were doing government service, 86.7% (26) of mothers were doing house wife.
• It has been concluded that majority of antenatal mothers are house wife.
• We found that majority of housewife are well aware of antenatal services.

TABLE 1.6: DISTRIBUTION OF GESTATIONAL AGE OF ANTENATAL MOTHERS.

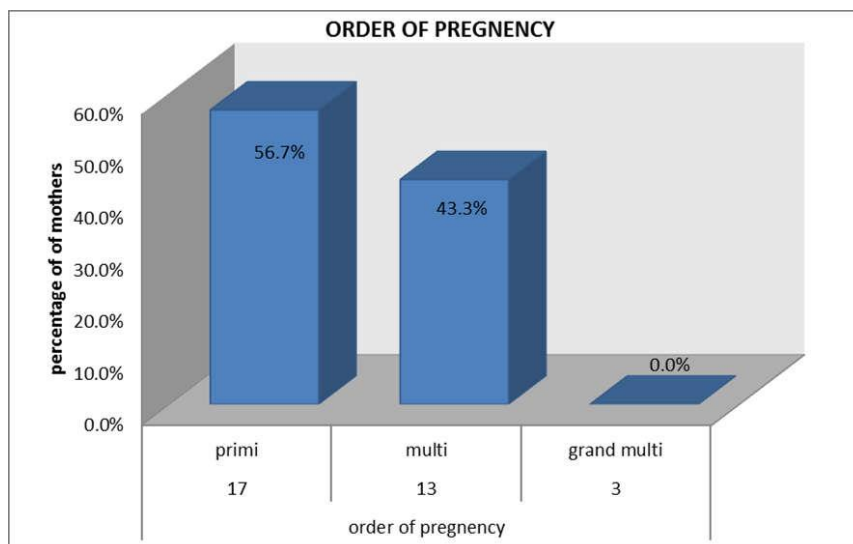| S.no.	Gestational age (in weeks)	Number	Percentage (%)
1	> 24 Weeks	8	26.7%
2	24-36 weeks	18	60.0%
3	37-39 Weeks	4	13.3%
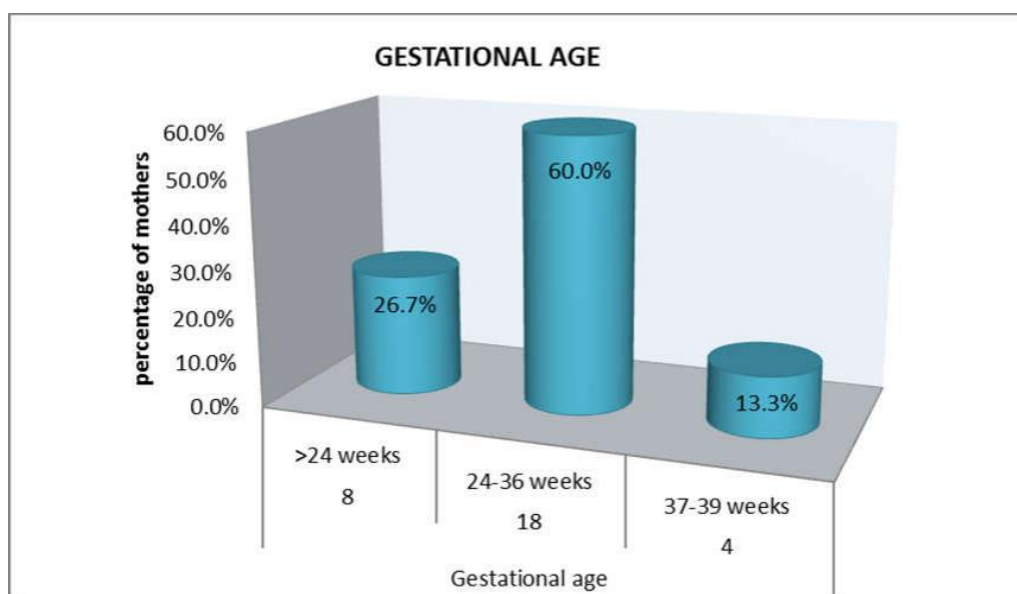
FIGURE 1.6: Distribution of gestational age of antenatal mothers.

INFERENCE:
• Gestational age distribution shows that 13.3% (4) of mothers were at 37-39 weeks of gestation, 26.7% (8) of mothers were at <24 weeks of gestation, 60% (18) of mothers were at 24-36 weeks of gestation.
• It has been concluded that majority of antenatal mothers were at 24-36 weeks of gestational age.

TABLE 1.7: DISTRIBUTION OF ORDER OF PREGNANCY.

S.no.	Order of Pregnancy	Number	Percentage (%)
1	Primi	17	56.7%
2	Multi	13	43.3%
3	Grand multi	0	0.0%

Dr. Jayasree *et al.* An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*

1066

FIGURE 1.7: Distribution of order of pregnancy

INFERENCE:
• Distribution of order of pregnancy among all antenatal mothers showed none of the mother were belongs to grand multi, 43.3% (13) of mothers are multi, 56.7% (17) of mothers are primi mothers.
• It has been concluded that majority of antenatal mothers are primi mothers.
• Appreciate the mothers because they are well aware about the family planning and so the risk complications was reduced.

TABLE 1.8: DISTRIBUTION OF HISTORY OF PREVIOUS PREGNANCY

S.no.	HOPP	count	Number	Percentage (%)
1	ND	1	17	26.7%
2	IUD	4	4	3.3%
3	Cesarean	17	09	13.3%
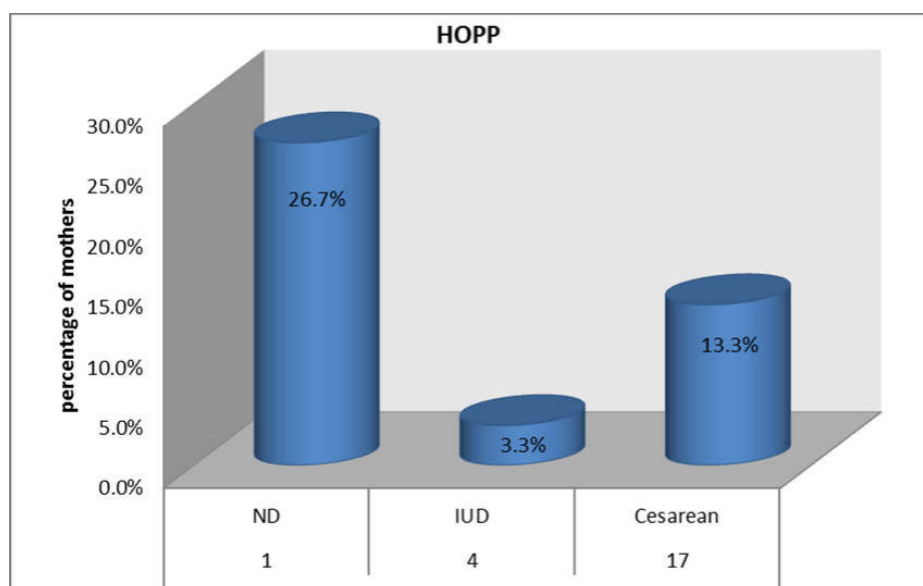
**FIGURE 1.8: Distribution of history of previous pregnancy**

INFERENCE:
• Distribution of history of previous pregnancy showed that 3.3% (4)of antenatal mothers were having intra uterine death (IUD), 13.3% (9),
• Of mothers having history of cesarean delivery, 26.7% (17) of mothers were having history of normal delivery.
• It has been conclude that majority of antenatal mothers had normal delivery.
• High risk is still not reduced it shows that they are not using hospital services.

Dr. Jayasree *et al.* An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*

1067

TABLE-1.9: FREQUENCY DISTRIBUTION OF KNOWLEDGE AMONG ANTENATAL MOTHERS.

Knowledge	Frequency (in numbers)	Percentage (%)
Inadequate	20	66.7
Moderate	9	30
Adequate	1	3.3
Total	30	100
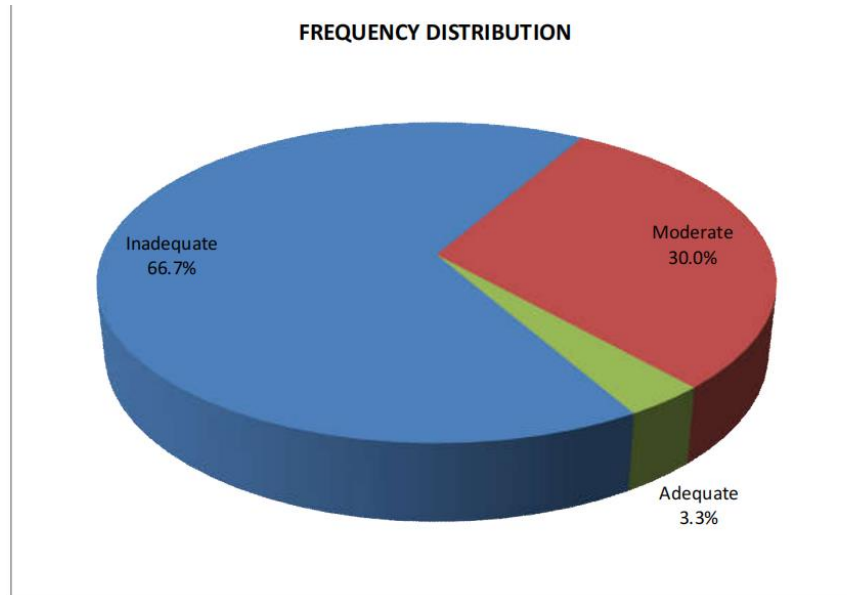
FIGURE 1.9: Frequency distribution of knowledge among antenatal mothers.

INFERENCE:

• Frequency distribution of knowledge shows that out of total number of sample, 66.7% (20) of mothers were having poor knowledge about pregnancy induced hypertension, 30% (9) of mothers having moderate knowledge about PIH, 3.3% (1) of mothers were having adequate knowledge regarding pregnancy induced hypertension.

• MCH programme was first initiated in the early 1900's when maternity services were improved and rural midwives and birth attendants received training. In 1946, the Bhore committee recommended the integration of MCH within general health services but implementation occurred after 1955. Before 1953, MCH was unevenly distributed and delivered through maternity homes and midwives. The Mudaliar committee in 1962, recommended for instance the expansion of MCH centers to include 1 ANM per 10,000 population, the committee on child welfare programme associated successful family planning with good MCH services. India established a national policy for children and a children's board.
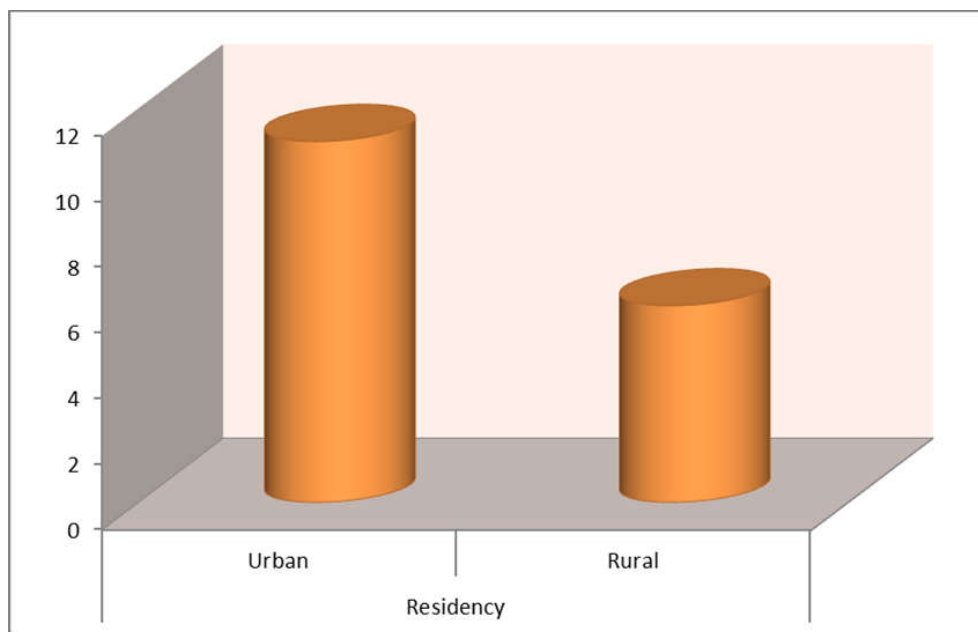
• Now the maternal mortality and morbidity arte was reduced by the actions taken by the goverment of india through MCH programme. The 1983 national health policy identified 9 out of 17 goals as child-related. Hypertension is the most common medical problem encountered during pregnancy complicating 2-3% of pregnancies. Many complication are arising during pregnancy. Now days in worldwide PIH complications are increased. Everyday 1500 women die from these complications. PIH is a major health problem in the obstetric population, in the obstetric populations as they are one of the leading cause of maternal, perinatal morbidity and mortality.

• After implementing 5 year plan still the study shows that the majority of mothers doesn't have adequate knowledge about pregnancy induced hypertension.

TABLE-1.10: ASSOCIATION-1 ASSOCIATION BETWEEN KNOWLEDGE AND AREA OF RESIDENCY.

S.no.	Residency	Median class
1	Urban	11
2	Rural	6

Dr. Jayasree *et al.* An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*
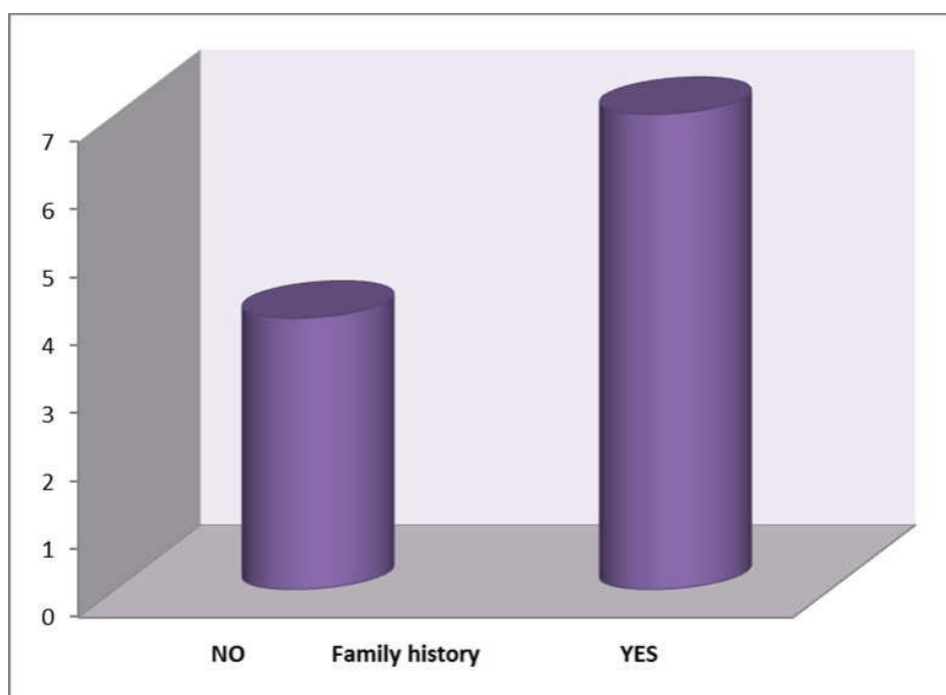
1068

FIGURE1.10 Association between knowledge with area of residency- (urban, rural)

INFERENCE:

• Association between knowledge with area of residency (urban, rural) shows that - Antenatal mothers who were living in rural community they have less or minimal knowledge regarding pregnancy induced hypertension compare to mothers who were living in urban community.

• It's a welcome sign that antenatal mothers from rural area are voluntarily coming for the regular antenatal checkup.

TABLE 1.12: ASSOCIATION-2 ASSOCIATION BETWEEN KNOWLEDGE WITH FAMILY HISTORY.

S.no.	Family history	Median class
1	Yes	4
2	No	7

FIGURE1.11: Association between knowledge with family history.

Dr. Jayasree *et al.* An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*

1069

INFERENCE:
- Table-1.10 and figure 1.10 represents the assessment of knowledge regarding pregnancy induced hypertension among antenatal mothers.
- Among 30 antenatal mothers, 66.7% (20) of antenatal mothers were having poor knowledge regarding pregnancy induced hypertension, 30% (9) of
  mothers were having moderate knowledge regarding PIH, 3.3% (1) of mothers
  were having adequate knowledge regarding pregnancy induced hypertension.
- It revealed that majority of antenatal mothers were having poor knowledge regarding pregnancy induced hypertension.
- Table-1.2 and figure 1.11 represents the area of residency of antenatal mothers.
- It has been concluded that the majority of antenatal mothers 93.3% (28) were belongs to rural community, this shows that mothers did not have adequate knowledge regarding pregnancy induced hypertension.

Discussion

The study aimed to assess the knowledge of antenatal mothers regarding Pregnancy-Induced Hypertension (PIH) and to identify associations between this knowledge and various demographic variables.

Assessment of Knowledge on PIH

The findings reveal that the majority of antenatal mothers exhibited a deficiency in knowledge concerning PIH. Among the 30 participants, 66.7% had poor knowledge, 30% had moderate knowledge, and only 3.3% demonstrated adequate knowledge about PIH. Despite efforts to improve awareness over five years, the study indicates that the majority of antenatal mothers still lack sufficient knowledge about PIH.

Notably, a positive aspect emerged in that most antenatal mothers were well-informed about the correct age for marriage, which can contribute to reducing the risk of complications. However, inadequate knowledge persisted regarding PIH.

The study further highlights that literacy rates among mothers have improved, with a significant portion of housewives demonstrating awareness of antenatal services. This indicates a positive awareness of family planning, which helps reduce the risk of complications.

Nonetheless, the study suggests that high-risk factors have not diminished, as 20% of mothers married below the age of 20, placing them at a higher risk for PIH.

Identification of Associations with Demographic Variables

The analysis reveals significant associations between knowledge and specific demographic variables:
- **Residence Area:** A significant association exists, with a p-value of 0.0482 ($p < 0.05$).
- **Family History:** A significant association was observed, with a p-value of 0.0303 ($p < 0.05$).
  However, no significant associations were found between knowledge and variables such as age, education, occupation, gestational age, order of pregnancy, history of previous pregnancy, and age at marriage, as indicated by p-values exceeding 0.06.
  In summary, the study underscores the need for further educational initiatives to enhance knowledge among antenatal mothers, especially in rural areas. While improvements have been noted, there remains work to be done in reducing high-risk factors such as early marriages. Additionally, the study highlights the importance of addressing demographic variables to tailor educational efforts effectively.
  These findings align with the research focus of "An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry."

CONCLUSION:

The study revealed that the majority of antenatal mothers had poor knowledge of PIH. Demographic variables significantly influenced knowledge. This study emphasizes the importance of educating expectant mothers about PIH, particularly in rural areas, to enhance maternal and perinatal health awareness.

REFERENCES:
[1] Smith, A. (2020). Maternal Health and Pregnancy. Publisher.
[2] Jones, B. (2019). Evolution of Maternal and Child Health Programs. Journal of Healthcare History, 15(2), 45-62.
[3] Anderson, C. (2018). Maternity Services and Policy in India. International Journal of Public Health Policy, 10(3), 132-147.
[4] WHO. (2021). Hypertension in Pregnancy: Key Facts. World Health Organization. [URL]
[5] WHO. (2020). Maternal Mortality: A Global Health Challenge. World Health Organization. [URL]
[6] Johnson, E. (2017). Pre-Eclampsia Awareness among Expectant Mothers. Journal of Obstetric Medicine, 25(4), 12-19.
[7] United Nations. (2015). Millennium Development Goals Report. United Nations Publications.

Dr. Jayasree et al. An Investigation into Pre-Eclampsia Awareness and the Implementation of an Educational Initiative for Expectant Mothers at the Primary Health Center in Kirumampakkam, Puducherry. *Int. J Med. Pharm. Res., 6 (5): 1061-1070, 2025*

1070