



Original Research Article

Effect of Nurse-Led Intervention on Knowledge and Practice Among Antenatal Mothers With Pregnancy Induced Hypertension (PIH) Visiting Gynae OPD of a Tertiary Hospital.

Article History:

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Received: 10-11-2025

Revised: 26-11-2025

Accepted: 08-12-2025

Published: 22-12-2025

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INTRODUCTION

Pregnancy-induced hypertension (PIH) affects approximately 5–10% of pregnancies and is one of the leading causes of maternal and fetal morbidity and mortality. Complications include preeclampsia, eclampsia, preterm birth, low birth weight, and intrauterine growth restriction. Despite advances in maternal healthcare, lack of awareness and poor compliance with self-care

Abstract: Aim & Objective: To assess the effectiveness of a structured nurse-led intervention on knowledge and self-care practices among antenatal mothers diagnosed with pregnancy-induced hypertension (PIH) attending a gynecology outpatient department.

Background/Introduction: Pregnancy-induced hypertension remains a significant contributor to maternal and fetal morbidity and mortality. Despite routine antenatal care, gaps in knowledge and adherence to self-care practices persist. Nurse-led interventions have the potential to bridge this gap through patient education and empowerment. Educating expectant mothers empowers them to manage their condition effectively, recognize danger signs early, and adopt appropriate lifestyle modifications. This proactive approach aligns with global health goals to reduce maternal mortality. **Material & Methods:** An interventional study was conducted among 60 antenatal mothers diagnosed with PIH attending the gynaecology OPD of a tertiary care hospital. A total enumerative sampling technique was used. The study utilized a pre-test/post-test design without a control group. Participants were assessed for their baseline knowledge and self-care practices using a validated structured questionnaire. Following the pre-test, a structured nurse-led educational intervention was administered individually. A post-test using the same tool was conducted one week later to assess improvement. **Results:** Post-intervention results showed a significant improvement in the knowledge and self-care practices of antenatal mothers. The mean knowledge score increased from 8.4 ± 2.1 (pre-test) to 15.6 ± 1.8 (post-test). A paired t-test analysis revealed a p-value <0.001 , indicating high statistical significance. No adverse events or refusals were recorded during the intervention phase. **Conclusion:** The nurse-led intervention proved to be effective in enhancing knowledge and improving self-care practices among antenatal mothers with PIH. Such interventions can be integrated into routine antenatal care to reduce complications and improve maternal outcomes.

Keywords: Pregnancy-Induced Hypertension, Nurse-Led Intervention, Antenatal Mothers, Self-Care Practices, Knowledge, Interventional Study

measures continue to hinder positive outcomes. Nurses, as frontline caregivers, are in a strategic position to provide health education and closely monitor antenatal mothers. 1,2

Globally, it is estimated that 5–8% of antenatal women experience PIH, and 10% experience preeclampsia.³ A 2017 survey also shown that PIH affects 8–10% of pregnancies, highlighting how

common it is. Advanced maternal age, hormonal imbalances, a history of hypertension, primigravida (first-time pregnancy), obesity, and a family history of hypertensive disorders are some of the risk aspects that lead to the development of PIH. Nurse-led interventions focus on patient education, lifestyle modification, and consistent follow-up—essential components for managing PIH effectively.^{4,5} This study aimed to assess the effectiveness of such an intervention in improving the knowledge and self-care practices of antenatal mothers attending a gynecology outpatient department.

MATERIAL AND METHODS

This quasi-experimental study employed a one-group pre-test/post-test design and was conducted over a three-month period in the gynecology OPD of a tertiary care hospital. A total of 60 antenatal mothers diagnosed with PIH were selected using total enumerative sampling technique. The inclusion criteria were antenatal mothers between 20–35 years of age, diagnosed with PIH, attending OPD services, and willing to participate. Those with chronic hypertension, gestational diabetes, or other systemic illnesses were excluded.

A validated structured questionnaire with closed-ended questions was used to assess knowledge, and a checklist evaluated self-care practices. Ethical approval was obtained from the institutional ethics committee, and informed written consent was taken from all participants. Confidentiality and voluntary participation were assured.

After baseline data collection (pre-test), participants received a structured nurse-led educational intervention. The intervention consisted of individualized health education sessions provided to each participant after the pre-test. These sessions lasted approximately 25–30 minutes and were conducted in the gynecology outpatient department in a quiet, private area. The content of the intervention included: An overview of PIH, its causes, signs and symptoms, and potential complications for both mother and fetus

- Dietary recommendations for PIH (e.g., reduced salt intake, adequate hydration, iron-rich foods)
- Importance of adequate rest and physical activity
- Medication adherence and the importance of regular antenatal check-ups
- Warning signs that require immediate medical attention (e.g., blurred vision, swelling,

headaches, reduced fetal movements)

The implementation of the nurse-led intervention was carried out in a systematic and organized manner in the gynecology outpatient department (OPD) of a tertiary care hospital. The process involved the following steps:

Participant Identification and Recruitment
Eligible antenatal mothers diagnosed with pregnancy-induced hypertension (PIH) were identified through total enumerative sampling technique during their routine antenatal visits to the OPD. Inclusion and exclusion criteria were applied, and a total of 60 participants were recruited. Informed written consent was obtained from each antenatal mother after explaining the study purpose, confidentiality, and voluntary nature of participation.

Pre-Test Assessment

Before the intervention, a structured and validated questionnaire was administered to assess the baseline knowledge and self-care practices related to PIH. This served as the pre-test data for comparison.

Delivery of the Intervention

Following the pre-test, the structured nurse-led intervention was provided individually to each participant in a calm and distraction-free environment within the OPD. Each session lasted approximately 15–20 minutes and included: Verbal explanation using simple, local language, Distribution of printed pamphlets with key information, Encouraging questions to ensure understanding and engagement. The educational content covered the definition, causes, symptoms, and complications of PIH; dietary and lifestyle modifications; medication adherence; and identification of danger signs.

Reinforcement and Follow-Up

Participants were encouraged to follow the advice provided and practice the recommended self-care measures at home. They were reminded to return for follow-up during their next OPD visit, where additional clarification and reinforcement of key points were provided when needed.

Post-Test Assessment

One week after the intervention, the same structured questionnaire was re-administered as a post-test to evaluate the change in knowledge and self-care practices. The difference between pre- and post-test scores was used to assess the effectiveness of the intervention.

RESULTS

The study included 60 antenatal mothers with a mean age of 27.4 years. Most participants were primigravida and in

their third trimester.

Among 60 antenatal mothers with PIH, 50% were aged 20–25 years, 42% were 26–30 years, and 8.3% were 31–35 years. 37.5% had secondary education; 10% had no formal schooling. 47% were homemakers, and 65% followed Hinduism. Urban residents accounted for 57%, and 52% lived in nuclear families. Monthly income ranged ₹20,000–₹40,000 in 73.3%. 55% had prior knowledge of PIH, mainly via doctors (25%), professionals (17%), and family (13.3%).

The post-test knowledge scores were significantly higher (Mean = 22.96, SD = 2.83) compared to the pre-test scores (Mean = 17.53, SD = 3.16), indicating substantial improvement following the intervention.

the mean pre-test knowledge score was 17.16 ± 3.12 (59.2%), which increased to 24 ± 1.83 (83%) post-intervention. The improvement was statistically significant ($t = 17.4$, $p < 0.01$). The mean pre-test self-reported practice score was 21.81 ± 2.30 (78%), which increased to 26.7 ± 1.23 (89%) post-intervention. This improvement was statistically significant ($t = 14.6$, $p < 0.01$). The table showed no statistically significant association between antenatal mothers' knowledge levels with sociodemographic variables.

It showed no significant association between self-reported practice scores and demographic except for gravida and parity showed a statistically significant association (0.02*).

No dropouts or refusals were observed, and participants expressed satisfaction with the information and attention received

Table No. 1: Frequency and percentage of socio-demographic profile of antenatal mothers with PIH.
(n=60)

S.No	Variables	Frequency (f)	Percentage (%)
1	Age of mothers (in years)		
	a. 20-25	30	50.00%
	b. 26-30	25	42%
	c. 31 -35	5	8.30%
2	Educational status		
	a. Primary Education	6	10.00%
	b. Secondary Education	31	52%
	c. Graduate	17	28.30%
3	Occupation		
	a. Homemaker	28	47%
	b. Private employee	22	37%
	c. Government employee	10	16.70%
4	Religion		
	a. Hindu	39	65%
	b. Muslim	9	15.00%
	c. Sikh	6	10.00%
5	Area of Living		
	a. Urban	34	57%
	b. Rural	26	43.30%
6	Type of Family		
	a. Nuclear family	31	52%
	b. Joint family	25	42%
	c. Extended family	4	6.70%
7	Monthly Income(in Rs)		
	a. Between 20,000-40,000	44	73.30%
	b. Between 40,000-60,000	9	15%
	c. Above 60,000	5	8.30%
8	Previous information about Pregnancy Induced Hypertension		
	a. Yes	33	55%
	b. No	27	45%
	Source of Information(n=33)		
	a. Family member is in Medical profession	08	13.33%
	b. Informed by doctor in previous pregnancy.	15	25%
	c. Belongs to Medical Profession	10	17%

Figure1- To assess the knowledge regarding Pregnancy Induced Hypertension among antenatal mothers. (n=60)

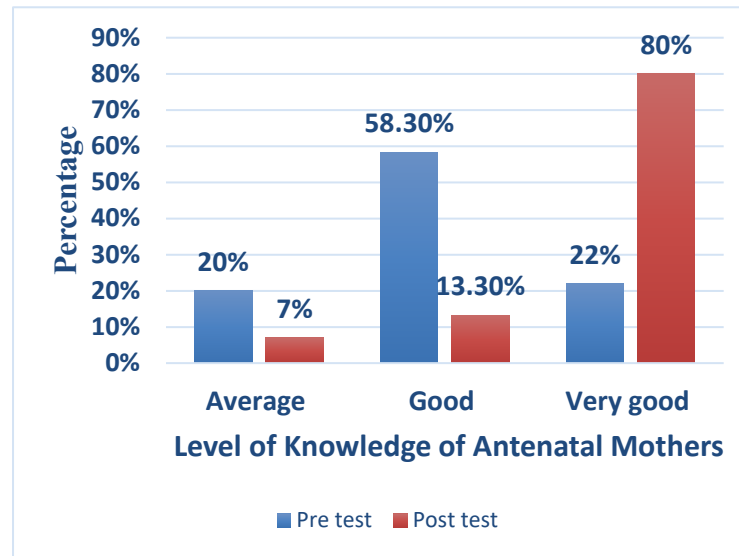


Table No.3- Range, Mean, Standard Deviation, Median, Mean Percentage and t value of knowledge score regarding PIH among the antenatal mothers. (n=60)

Knowledge score	Range	Median	Mean±SD	t value	p value	Mean Percentage
Pre-test	11 to 24	17	17.16±3.12	17.4*	<0.01*	59.20%
Post-test	19 to 28	24	24±1.83			83.00%

Table 4: Area-wise distribution of mean, median, standard deviation, mean difference and t value in knowledge scores related to pregnancy-induced hypertension among antenatal mothers. (n=60)

S.No.	Component wise knowledge related to PIH	Maximum Score	Pre-test Mean±SD	Post-test Mean±SD	Mean Difference	t value	p value
1.	Introduction	3	1.47±1.11	02±0.99	0.53	3.22	0.003
2.	Risk factors	3	1.23±1.14	2.4±0.89	1.17	6.60	<0.001
3.	Sign and symptoms of PIH	5	1.33±2.98	3.91±0.98	2.58	4.99	<0.001
4.	Diagnosis of PIH	2	0.65±0.84	1.6±0.69	0.95	7.12	<0.001
5.	Complications of PIH	4	2.82±0.79	3.65±0.48	0.83	7.44	0.001
6.	Prevention and treatment	5	2.95±1.4	4.38±1.07	1.43	6.99	<0.001
7.	Exercises for antenatal mothers	4	3.02±0.77	3.53±0.65	0.51	4.22	<0.001
8.	Antenatal visits	3	2.05±0.65	2.51±0.65	0.46	5.16	0.001

Figure 2- To assess the practice regarding Pregnancy Induced Hypertension among antenatal mothers. (n=60)

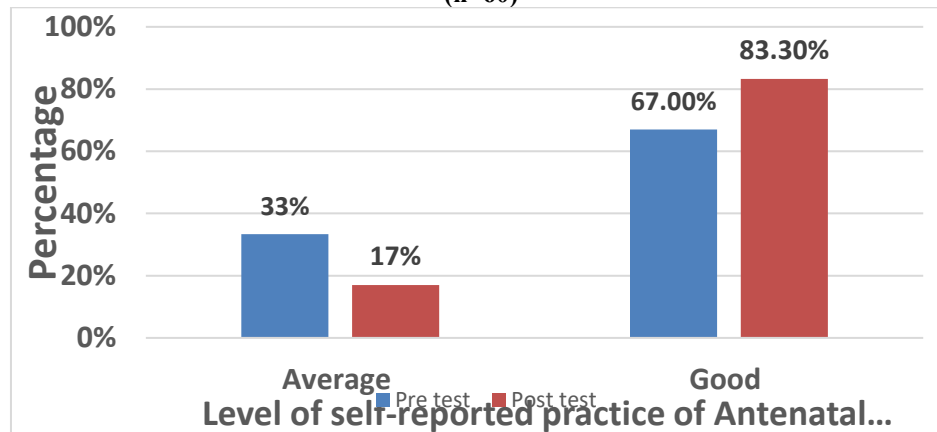


Table No.5- Range, Mean, Standard Deviation, Median, Mean Percentage and t value of Self-reported practices regarding PIH, among the antenatal mothers. (n=60)

Practice score	Range	Median	Mean±SD	t value	p value	Mean Percentage
Pre-test	18 to 27	22	21.81±2.30	14.6*	<0.01*	78.00%
Post-test	24 to 29	27	26.7±1.23			89.00%

Table 6: Area-wise analysis of mean, median, standard deviation, and mean difference in Self-reported practices related to pregnancy-induced hypertension among antenatal mothers. (n=60)

S.No	Component wise self-reported practices	Maximum score	Pre-test	Post-test	Mean Difference	t value	p value
			Mean±SD	Mean±SD			
1.	Antenatal visits	4	3.59±0.5	3.95±0.22	0.35	5.28	<0.001
2.	Rest and sleep	6	3.76±1.09	05±0.78	1.24	8.05	<0.001
3.	Exercise	4	1.17±1.19	2.2±0.55	1.03	6.44	0.001
4.	Diet	10	8.32±1.55	9.56±0.74	1.24	6.28	<0.001
5.	Supplements	6	5.03±0.93	5.93±0.31	0.9	7.47	<0.001

Table No. 10- Correlation between knowledge and Self-reported practices, score of antenatal mothers with PIH. (n=60)

S.No.	Variables	r' value	p value
1.	Knowledge score	0.04	0.7
2.	Self-reported practice score		

Table No 11: Association between level of knowledge regarding PIH among the antenatal mothers with their selected Socio Demographic variable.

S.No.	Sample Variable	Below Median (≤32)	At and above median(>32)	Chi square	p value
1	Age			0.18	0.67
		a.20-26 years	15		
		b. Above 26 years	12		
2	Educational status			0.03	0.86
		a.Primary Education	3		
		b. Secondary and above	26		
3	Occupation			0.3	0.58
		a. Homemaker	12		
		b. Others	15		

4	Religion a. Hindu b. Others	20 10	18 12	0.95	0.32
5	Area of Living a. Urban b. Rural	16 12	18 14	0.9	0.32
6	Type of Family a. Nuclear Family b. Joint family	14 15	17 14	0.57	0.44
7	Monthly Income(Rs) a. 25,000 and below b. Above 25,000	11 17	17 15	0.07	0.8
8	Gravida a. Primigravida b. Multigravida	14 14	21 11	1.5	0.22
9	Parity a. Primipara b. Multipara	14 14	21 11	1.5	0.22
10	Gestational age in weeks a. 28 and below b. Above 28	11 17	6 26	3.1	0.07

df₁ = 3.84 at the level of (P < 0.05) significance

Table No 12: Association between level of practice regarding PIH among the antenatal mothers with their selected Socio Demographic variables.

S.No.	Sample Variable	Below Median (≤ 39)	At and above median (> 39)	Chi square	p value
1	Age a. 20-26 years b. Above 26 years	9 15	17 19	1.9	0.2
2	Educational status a. Primary Education b. Secondary and above	12 15	15 18	2.5	0.1
3	Occupation a. Homemaker b. Others	12 10	16 22	0.9	0.4
4	Religion a. Hindu b. Others	16 6	23 15	0.9	0.3
5	Area of Living a. Urban b. Rural	15 7	19 19	1.8	0.2
6	Type of Family a. Nuclear Family b. Joint family	9 13	22 16	1.6	0.2
7	Monthly Income a. 25,000 and below b. Above 25,000	10 12	18 20	0.02	0.9
8	Gravida a. Primigravida b. Multigravida	17 5	18 20	5.1	0.02*
9	Parity a. Primipara b. Multipara	17 5	18 20	5.1	0.02*
10	Gestational age in weeks a. Below 28 weeks b. Above 28 weeks	5 17	12 26	0.5	0.5

DISCUSSION

The results of this study are in line with similar studies emphasizing the effectiveness of nurse-led interventions in antenatal care. Improved knowledge is directly correlated with better self-care behavior, which can prevent complications related to hypertensive disorders in pregnancy.

The present study, most of the antenatal mothers (50%) were aged between 20–25 years, followed by 42% in the 26–30 years group, and 8.3% were between 31–35 years. Regarding education, 37.5% of participants had completed secondary education, 14.3% were postgraduates, and 8.9% had only primary education, while 10% had no formal education. Occupationally, 47% were homemakers, 37% were private employees, and 16.7% were government employees.

A similar study conducted by Peter BB, Okafar UB et al. (2024) found that 45% of antenatal mothers were in the 26–35 years age group, and 49.4% had completed secondary education.⁶ Likewise, TM Hanan (2023) reported that 40% of antenatal mothers were aged 18–30 years, 58% had secondary education, and 71% were housewives.

In the present study, the mean knowledge score increased from 17.16 ± 3.12 to 24 ± 1.83 post-intervention, with a significant t-value of 17.4 ($p < 0.01$). Similarly, Ghag SS (2023) reported an increase from 5.25 to 13.65, with a t-value of 15.56, also indicating a significant improvement.⁵ In the present study, self-reported practice scores improved significantly from 21.81 ± 2.30 to 26.7 ± 1.23 ($t = 14.6$, $p < 0.01$). This aligns with Zhu Z (2022), who found that pregnancy exercise interventions reduced the risk of PIH and preeclampsia by 39% and 41%, respectively, supporting the value of self-care practices in maternal health.⁷

A slight positive relationship ($r = 0.04$) was noted between knowledge and self-reported practices, consistent with Bashir A (2023) who found a similar trend ($r = 0.01$), indicating that greater knowledge may contribute to improved self-care in pregnancy-induced hypertension.¹⁰ No significant association was found between knowledge and demographic variables in this study, consistent with Khuan L (2023),⁸ who also reported no link between knowledge scores and socio-demographic factors, indicating knowledge may not be influenced by background characteristics.

5. Limitations-

The small sample size limited generalizability, and reliance on self-reported practices may have introduced bias, as actual behaviors were not directly observed.

CONCLUSION

The study concludes, a significant improvement was observed in the knowledge and self-reported practices of antenatal mothers regarding pregnancy-induced hypertension following the intervention. Although no significant association was found between knowledge levels and socio-demographic variables, gravida and parity were significantly linked to self-care practices. The correlation between knowledge and practice was positive but weak. These findings highlight the importance of structured educational interventions in antenatal care to enhance

awareness and promote better self-care behaviors. Future studies with larger, community-based samples could help identify further influencing factors. Regular health education and screening are recommended to empower pregnant women and reduce the risks associated with PIH.

7. Source of Funding

This work was supported by financial assistance from the Himalayan College of Nursing (HCN), Swami Rama Himalayan University (SRHU).

8. Conflicts of interest

No conflicts of interest

9. Ethical Approval: Ethical approval was obtained from Ethics Committee of SRHU (SRHU/HIMS/ETHICS/2024/518)

10. Informed Consent

Informed consent was obtained from all the Participants.

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