

Effectiveness of planned teaching program on knowledge about management of pregnancy-induced hypertension and birth preparedness among antenatal mothers with pregnancy-induced hypertension

Anuradha Sharma¹, Gomathi B², Laxmi Kumar²

¹Narayan Swami College of Nursing, Subharti University, Dehardun, Uttarakhand, India, ²Himalayan College of Nursing, Swami Rama Himalayan University, Dehardun, Uttarakhand, India

Correspondence to: Gomathi B, E-mail: bgomathi84@gmail.com

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ABSTRACT

Background: Hypertension is one of the common complications and contributes significantly to maternal and perinatal morbidity and mortality. Pregnancy-induced hypertension (PIH) is defined as sustained increased level of blood pressure >140/90 after the 20th week of pregnancy. **Objective:** The aim of this study is to assess the presence of contributing factors of PIH and effectiveness of structured teaching program (STP) on the management of PIH and birth preparedness. **Materials and Methods:** Quantitative research approach with one group pre-test–post-test design was used to carry out the study. A total of 60 antenatal mothers with PIH were selected by non-probability convenient sampling technique. Demographic performa, questionnaire to assess the risk factors, and structured knowledge questionnaire were used to collect the data. Data were collected by interview method. **Results:** The contributing factors of PIH identified in the study were age (26-30), period of gestation of more than 28 weeks, primigravida, vegetarian, and body mass index (BMI) more than 25. The mean pre-test knowledge score was 14.36 ± 3.46 , and post-test knowledge score was 24.63 ± 3.42 . The post-test mean knowledge score was found significantly higher than the mean pre-test knowledge score. There was no significant association found between the demographic variables with knowledge level and contributing factors except the factors gestational age, gravida, and BMI. **Conclusion:** The findings of the study revealed that STP was effective in enhancing the knowledge of antenatal mothers with PIH.

KEY WORDS: Antenatal Mothers; Birth Preparedness; Contributing Factors; Knowledge; Planned Teaching Program; Pregnancy-induced Hypertension


INTRODUCTION

Pregnancy and childbirth are one of the vital and important life events for the mother. It acts as a joyous and major appreciation for the women who pass through transitional phases into a new life of motherhood.^[1] However, many

times, it can become hazardous to her life, particularly in India and other developing countries, due to the lack of care and ignorance.^[2]

Maternal mortality is just the tip of the iceberg of the health problems of women. In developing countries, pregnancy and childbirth-related complications are the leading causes of disability among women aged 15-44. The world development report estimated that the burden of disease for these women is due to maternal causes and leads to maternal death.^[3]

The estimated range of incidence of PIH shows that 10-15%. The study conducted by Kosravi et al. shows a high prevalence of hypertensive disorders among pregnant women. PIH is

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considered as the main cause of maternal, fetal, and neonatal mortality and morbidity according to the World Health Organization. A retrospective study between 2000 and 2009 in India found that PIH was the third major causes of maternal death. The most common cause of maternal mortality rate (MMR) in PIH was hemolysis, elevated liver enzymes, and low platelet count which constitutes 83.3% and pulmonary edema and hemorrhagic shock.^[4]

On the other hand, maternal short-term complications include central nervous system dysfunction, thrombocytopenia, hepatocellular injury, acute disseminated intravascular coagulation, oliguria, pulmonary edema, and pulmonary abruption. The study conducted by Bhattacharya and Campbell shows among 4188 women with PIH, the incidence of complication was 6%. Hematologic complications were common, and incidence of placental abruption was 2.8%.^[5]

The neonatal complications noted with PIH women which includes intrauterine growth restriction, small for gestational age, preterm birth, intrauterine, and perinatal death. The study conducted by Ahmad and Samvelson shows that 17,933 stillbirths, 9.2%, were by pregnancies complicated by hypertensive disorders of pregnancy.^[6]

Antenatal care played an important role in diagnosing, curing, and preventing the hypertensive disorders of pregnancies. Frequent follow-up, assessment of blood pressure, and the search for proteinuria form the cornerstone of antenatal screening of all pregnant women for PIH and her fetus which can prevent maternal and fetal mortality and morbidity.^[7]

Hence, maintenance of health is an important part of prenatal care. Mother's participation ensures the prompt reporting of the problems. To reduce MMR, women with PIH should be informed of their disease, and satisfactory information should be provided by health-care providers which will enhance the mother knowledge regarding PIH and steps can be taken to prevent maternal and fetal complications.^[8]

MATERIALS AND METHODS

The quantitative approach with one group pre-test-post-test design was used. Non-probability convenient sampling technique was used to select 60 antenatal mothers with PIH. The antenatal mothers with PIH who were attending antenatal out-patient department, willing to participate in the study, having the gestational age more than 24 weeks, present at the time of data collection, age <40 years, and able to understand and speak the Hindi language were included in the study. Antenatal mothers with convulsion and chronic medical illness were excluded from the study. On the 1st day, women were explained the purpose of the study, and written informed consent was obtained. Pre-test was done using demographic performa, questionnaire

to assess the risk factors, and knowledge questionnaire. Planned teaching program (PTP) on the management of PIH and birth preparedness was implemented after pre-test. Post-test was conducted 7 days after implementation of PTP using the same tools. Descriptive statistics including frequency, percentage, mean, and standard deviation were used to describe the result. Inferential statistics such as paired *t*-test, Chi-square test, with Yates correction, and Fisher's exact test were used to find the effectiveness and association.

RESULTS

Findings Related to Sociodemographic Variables of PIH Mothers

Table 1 shows the frequency and percentage distribution of sociodemographic variables of the study participants. Majority (60%) of the study participants were aged between 26 and 30 years. In a view of education, highest percentage (47%) were completed intermediate education. With regards to monthly income, majority of them (78%) were above

Table1: Frequency and percentage distribution of the sociodemographic variables *n*=60

Variables	Frequency (%)
Age (in years)	
20-25	24 (40)
26-30	36 (60)
Education	
Primary	2 (3)
High school	4 (6)
Intermediate	25 (42)
Graduate	16 (27)
Postgraduate	13 (22)
Occupation	
Homemaker	47 (78)
Daily wages	1 (1.7)
Government employee	5 (8.3)
Private employee	7 (11.7)
Religion	
Hindu	52 (87)
Others	8 (14)
Type of family	
Nuclear	30 (50)
Joint	30 (50)
Residence	
Rural	24 (40)
Urban	36 (60)
Family income (in Rs.)	
<15,000	6 (10)
>15,000	54 (90)

Rs. 15,000/month. Majority (78%) were homemaker and 87% were Hindu. An equal proportion of participants were from rural (50%) and urban (50%) area and also were from nuclear (50%) and joint (50%) family.

Findings Related to Contributing Factors of PIH

Table 2 shows the frequency and percentage distribution of contributing factors of PIH among the study participants. Most (60%) of PIH mothers were aged between 26 and 30 years, and almost three-fourth (73%) were having a period of gestation of more than 28 weeks. Two-third (67%) of PIH mothers were primigravida, and three-fourth (75%) had an age of menarche in the age of 12-13 years. Most (98%) of PIH mothers had no history of multiple pregnancy and also were not having any previous history of illness. Three-fourth (75%) of PIH mothers had no previous history of pregnancy-induced hypertension (PIH). Around 70% of PIH mothers were vegetarian, and 69% of PIH mothers were having body mass index (BMI) more than 25.

Table 2: Frequency and percentage distribution of the contributing factors of PIH

Variable	Frequency (%)
Age (in years)	
20-25	24 (40)
26-30	36 (60)
Age of menarche (years)	
12-13	45 (75)
14-15	15 (25)
Gravida	
Primigravida	40 (67)
Multigravida	20 (34)
Number of weeks in pregnancy	
<28	16 (27)
>28	44 (73)
Type of diet	
Vegetarian	42 (70)
Non-vegetarian	18 (30)
PHOPIH	
Yes	15 (25)
No	45 (75)
Multiple pregnancy	
Yes	1 (2)
No	59 (98)
Previous medical illness	
Yes	1 (2)
No	59 (98)
BMI	
<25	18 (31)
>25	42 (69)

PIH: Pregnancy-induced hypertension, BMI: Body mass index

Findings Related to the Effectiveness of Structured Teaching Program (STP) on PIH and its Management and Birth Preparedness among Antenatal Mothers with PIH

Table 3 depicts the area-wise comparison of knowledge score regarding management of PIH and birth preparedness. Highest pre-test and post-test mean score were 7.96 ± 2.05 and 11.15 ± 1.6 , respectively, seen in the area of "prevention and complication" in which the mean percentage was 44% and 62%, respectively, and mean difference was 18%. The highest effectiveness is seen in the form of mean difference, i.e., 52% which belongs to introduction to PIH. The findings revealed that there was a significant increase in post-test knowledge score of all 6 areas. Hence, it can be interpreted that PTP on the management of PIH and Birth preparedness was effective.

Table 4 shows that the mean of post-test knowledge score (14.36 ± 3.46) of the postnatal mothers was higher than that of the mean pre-test knowledge score (24.63 ± 3.42), and the mean difference was 10.27. Hence, the scores predicted that there was a statistically significant difference between the mean of pre-test and post-test at $P < 0.05$ level. Hence, the null hypothesis was rejected, and research hypothesis was accepted. This significant improvement in the knowledge can be attributed by the PTP.

Findings Related to Association between the Pre-test Knowledge Score of PIH Mothers and Selected Sociodemographic Variables

Table 5 shows the association between selected demographic variables and the pre-test knowledge scores of the PIH mothers. There was no statistical significant association found between mean pre-test knowledge score of antenatal mothers with PIH and their demographic variables. Hence, it can be interpreted that selected sociodemographic variable did not have any influence on pre-test knowledge of antenatal mothers with PIH.

Findings Related to Association between the Selected Contributing Factors of PIH and the Pre-test Knowledge Score of Antenatal PIH Mothers

Table 6 shows the association between selected contributing factors of PIH and the pre-test knowledge scores of the antenatal PIH mothers. There was no significant association found between mean pre-test knowledge score of antenatal mothers with PIH and their contributing factors except, i.e., gravida (0.03), number of weeks (0.04), and BMI (0.05). Hence, it interpreted that contributing factors did not have any influence on pre-test knowledge of antenatal mothers with PIH except the factors gravid, number of weeks, and BMI (0.05).

Table 3: Area wise mean, SD, and mean percentage of pre-test knowledge score regarding self-developed questionnaire regarding management of PIH and birth preparedness

Area-wise knowledge related to PIH	Maximum score	Mean±SD (pre-test)	Mean (%)	Mean±SD (post-test)	Mean (%)	Mean difference
Introduction to PIH	3	0.77±0.78	26	2.33±0.68	78	52
Contributing factors	4	0.92±0.69	23	1.87±0.89	47	24
Sign and symptoms	5	1.22±1.02	24	2.96±0.84	59	35
Diagnostic test	4	2.75±0.81	69	3.58±0.64	89	20
Prevention and complication	18	7.96±2.05	44	11.15±1.6	62	18
Birth preparedness	4	1.63±1.24	41	3.02±0.93	75	34
Total	38	14.36±3.46	38	24.63±3.42	63	25

PIH: Pregnancy-induced hypertension, SD: Standard deviation

Table 4: Comparisons of pre-test and post-test knowledge level of PIH mothers, n=60

Knowledge score of primary school teachers	Mean±SD	Mean difference	t	P
Pre-test score	14.36±3.46	10.27	21.20	0.001
Post-test score	24.63±3.42			

df=59 (t=1.67) at P<0.05. PIH: Pregnancy-induced hypertension, SD: Standard deviation

DISCUSSION

Findings related to the personal characteristics majority of the antenatal mothers with PIH were in the age group of 26-30 years of age. This result was supported by Joshi et al.^[9] also stated the more or less similar findings that antenatal mothers with PIH were in the age group of 21-35 years.

In the present study, most of the antenatal mothers with PIH had intermediate qualification, and majority (78%) of the antenatal mothers with PIH were homemaker and majority (87%) were belongs to Hindu religion. This study was supported by Joseph et al.^[10] also stated the similar findings that education, occupation do affects the antenatal PIH mothers.

In the present study, most of the antenatal PIH mothers were primigravida, and majority (73%) of the PIH mothers were having a period of gestation more than 28 weeks. This result was supported by Manjusha et al.^[11] who stated that more than half (56.52%) of the mother were primigravida and 34.78% of the patients had 31-35 weeks of period of gestation.

In the present study, majority of the antenatal PIH mothers were vegetarian and used to take balanced diet and avoid non-vegetarian food. Agarawal et al.^[12] also stated that highest percentage (34%) of the women who took diversified diet were more prone to develop PIH.

In the present study, majority PIH mothers had no history of multiple pregnancy and also (98%) a previous history of

Table 5: Association of pre-test knowledge scores with respondent's selected sociodemographic variables of participants n=60

Variables	Below median	At or above median	Chi-square	P
Age (in years)				
20-25	13	11	2.571	0.10
26-30	12	24		
Education				
Below graduates	17	14	2.509	0.11
Above graduates	10	19		
Occupation				
Homemaker	22	25	0.20	0.65*
Working women	3	10		
Religion				
Hindu	20	32	1.484	0.22*
Non-Hindu	5	3		
Type of family				
Nuclear	15	15	1.714	0.19
Joint	10	20		
Residence				
Rural	10	14	0.01	1.00
Urban	15	21		
Family income				
<15,000	3	3	1.00	0.31*
>15,000	22	22		
Number of visits				
<2	12	7	12.15	0.07
More than 2	13	28		

df (1)=3.84 at P<0.05, *Yates correction

illness. It was contradictory to the finding by Ramesh et al.^[13] who stated that highest percentage 44.9% of the mothers had a previous history of diabetes and hypertension (16.7%).

In the present study, findings show that mean pre-test knowledge score (14.36 ± 3.46) regarding management of PIH, and birth

Table 6: Association between the pre-test knowledge score of PIH mothers with their contributing factors of PIH, n=60

Variable	Below median	At or above median	Chi-square	P
Age (in years)				
20-25	13	11	2.571	0.10
26-30	12	24		
Age of menarche				
12-13	19	26	0.02	0.8
14-15	06	09		
Type of diet				
Vegetarian	16	26	0.735	0.39
Non-vegetarian	09	09		
Number of weeks of pregnancy				
<28	10	6	3.89	0.04
>28	15	29		
Gravida				
Primigravida	21	19	4.53	0.03*
Multigravida	04	16		
Previous history of PIH				
Yes	3	12	2.76	0.09*
No	22	23		
Multiple pregnancy				
Yes	01	0	0.25	0.41 [#]
No	24	35		
Previous medical illness				
Yes	0	1	0.45	1.0 [#]
No	25	34		
BMI				
<25	21	21	4.25	0.05*
>25	4	14		

df (1)=3.84 at $P < 0.05$, *Yates correction, [#]Fisher's exact.

PIH: Pregnancy-induced hypertension, BMI: Body mass index

preparedness was lower than that of mean post-test knowledge score (24.36 ± 3.42) and the mean difference was 10.27. The t calculated value was 21.20 which was higher than the tabulated value of 1.67 (df = 59 at $P = 0.05$ level). Hence, it was evident that there was a statistically significant mean difference present in pre-test and post-test score level of antenatal PIH mothers. This result was supported by Chaudhary and Chaudhary^[14] with the findings of the similar study. The finding shows that $t = 9.12$ ($P < 0.05$) which depicted enhancement in knowledge after administration of teaching program.

The present study was also supported by D'Souza^[15] with similar findings revealed that mean pre-test knowledge was

32.23% and mean post-test knowledge score was 84.9% which indicated an increase in knowledge score after PTP.

The present study was also supported by Maputle et al.^[16] with the findings which revealed that there was a deficit knowledge related to PIH, its symptoms, prevention and complications, and about the impact of PIH on unborn baby.

The present study was also supported by Pswarayi^[17] with the results showed that (74.3%) scored the PIH self-care knowledge scores above the mean score of 24 out of 48 after giving teaching program. Hence, teaching program was effective.

The present study was also supported by Jose et al.^[18] with the findings which showed that majority of mother (74.07%) had average knowledge, 12.96% had good knowledge, regarding self-care 60.18% had average knowledge, and 1.85% had poor knowledge.

The present study was supported by Joseph et al.^[10] with more or less similar findings that the mean percentage knowledge in the area of basic factors of PIH was 43.75%, clinical features 41%, diagnosis 44%, management 57.5%, diet 50%, complication 50%, and prevention 58%. This study concluded that there was a significant association between pre-test level of knowledge and age, educational status, occupation, monthly income, parity, gestational age, and history of hypertension in previous pregnancy.

The strength of the study is by considering the exclusion and inclusion criteria, homogeneity of the samples was maintained, and inferential statistics were used according to type and distribution of data. First, the study also has few limitations, and the study was limited to small number of samples. Second, the tools administered to collect data were self-developed questionnaire.

CONCLUSION

The findings of the study will help the nursing professional working in hospital and community areas to educate the antenatal mothers about the PIH and its management and birth preparedness. The overall findings of the present study revealed that STP was effective in enhancing the knowledge of antenatal mothers with PIH. Hence, the study concluded that STP had a great potential for accelerating the awareness regarding PIH and its management.

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