



Socio Demographic, Clinical and Psychosocial Determinants Affecting Psychological Wellbeing of Women with Pregnancy Induced Hypertension- A Cross-Sectional Study at Bagalkot

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ABSTRACT:

Introduction: Without woman nothing is possible for men, they are basic unit of society, they make family, family makes a home, home makes a society and ultimately societies make a country. So the contribution of a women is everywhere from taking birth and giving birth to a child to take care for whole life and for also in other areas.¹

Pregnancy induced hypertension (PIH) is hypertension that occurs after 20 weeks of gestation in women with previously normal blood pressure. The broad classification of pregnancy-induced hypertension during pregnancy is gestational hypertension, pre eclampsia and eclampsia. With high blood pressure, there is an increase in the resistance of blood vessels. This may hinder blood flow in many different organ systems in the expectant mother including the liver, kidneys, brain, uterus, and placenta.²

Aims: Socio demographic, clinical and psychosocial determinants affecting Psychological Wellbeing of women with pregnancy induced hypertension.

Settings and Design: This cross-sectional study included a sample of 100 women with pregnancy induced hypertension attending OBG units of selected hospitals of Bagalkot.

Methods and Material: Data were collected using self-report method and Hospital's records. Tools used for data collection were; socio-demographic and clinical questionnaire, Ryff's scale of Psychological Wellbeing, Centre for Epidemiologic Studies Depression Scale (CES-D Scale) and Social Provision Scale (SPS). Multiple linear regression analysis was performed to find the psychosocial determinants affecting Psychological Wellbeing of women with pregnancy induced hypertension.

Results: A significant regression equation was found ($F_{16,99}=4.5$, $R^2=0.46$, $P=0.000$) when all the variables are considered together for finding the psychosocial determinants affecting Psychological Wellbeing. Social Support has positively predicted the Psychological Wellbeing of women with pregnancy induced hypertension and other therapies has negatively predicted the Psychological Wellbeing of women with pregnancy induced hypertension. Depression was the strongest negative predictor of Psychological Wellbeing of women with pregnancy induced hypertension. ($\beta=-0.170$, $P<0.001$).

Conclusions: Interventions aimed at management of depression among women with pregnancy induced hypertension attending the OBG units of selected hospitals of Bagalkot would result in enhancement their Psychological Wellbeing.

1. Introduction

Without woman nothing is possible for men, they are basic unit of society, they make family, family makes a home, home makes a society and ultimately societies make a country. So the contribution of a women is everywhere from taking birth and giving birth to a child

to take care for whole life and for also in other areas. Pregnancy induced hypertension is a major contributors to maternal and perinatal morbidity and mortality. In the United States, about 15% of maternal deaths are attributable to hypertension, making it the second leading cause of maternal mortality. Severe hypertension



increases the mother's risk of cardiac failure, heart attack, renal failure and cerebral vascular accidents. In addition, the fetus is at increased risk from complications like poor placental transfer of oxygen, growth restriction, preterm birth, placental abruption, stillbirth and neonatal death. Hypertensive disorders represent the most common medical complications of pregnancy with a reported incidence of 5–10%¹.

Pregnancy Induced Hypertension (PIH) is hypertension that occurs after 20 weeks of gestation in women with previously normal blood pressure. The broad classification of pregnancy-induced hypertension during pregnancy is gestational hypertension, pre-eclampsia and eclampsia. With high blood pressure, there is an increase in the resistance of blood vessels. This may hinder blood flow in many different organ systems in the expectant mother including the liver, kidneys, brain, uterus, and placenta.

There are other problems that may develop as a result of PIH. Placental abruption (premature detachment of the placenta from the uterus) may occur in some pregnancies. PIH can also lead to fetal problems including intrauterine growth restriction (poor fetal growth) and stillbirth.

If untreated, severe PIH may cause dangerous seizures and even death in the mother and fetus. Because of these risks, it may be necessary for the baby to be delivered early, before 37 weeks' gestation.

Pregnancy Induced Hypertension (PIH) may cause by:

The exact cause of hypertension during pregnancy is unknown. Certain conditions or factors may increase your risk. They are,

- Pre-existing hypertension (high blood pressure)
- Kidney disease
- Diabetes
- PIH with a previous pregnancy
- Mother's age younger than 20 or older than 40
- Multiple fetuses (twins, triplets)
- Family history of PIH PIH may affect the baby as follows-
- High blood pressure (hypertension) during pregnancy can prevent the placenta (the food and oxygen supply for a fetus) from receiving enough blood. This decrease in blood and nutrients can cause:

- Low birth weight or intrauterine growth restriction (IUGR).

Psychological determinants can significantly impact pregnancy-induced hypertension (PIH) through various pathways:

1. **Stress:** High levels of stress during pregnancy have been associated with an increased risk of developing PIH. Chronic stress activates the sympathetic nervous system and hypothalamic-pituitary-adrenal (HPA)axis, leading to elevated levels of stress hormones such as cortisol and adrenaline, which can contribute to hypertension. Stress may also disrupt normal physiological processes, impairing placental function and fetal development.
2. **Anxiety and Depression:** Pregnant individuals experiencing anxiety or depression may be at higher risk of developing PIH. Psychological distress can dysregulate the immune system, increase inflammation, and promote vasoconstriction, all of which are implicated in the pathophysiology of hypertension. Moreover, anxiety and depression may lead to maladaptive health behaviors, such as poor diet, sedentary lifestyle, and inadequate prenatal care, which further exacerbate the risk of PIH.
3. **Perceived Social Support:** Social support plays a crucial role in buffering the effects of stress and promoting maternal well-being during pregnancy. Pregnant individuals with adequate social support tend to have lower levels of stress and anxiety, which may reduce their risk of developing PIH. Conversely, lack of social support or perceived isolation can increase vulnerability to psychological distress and hypertension.
4. **Coping Mechanisms:** Individual differences in coping strategies can influence the physiological response to stress and impact the risk of PIH. Maladaptive coping mechanisms, such as avoidance, denial, or substance use, may exacerbate stress and contribute to hypertension.
5. **Psychosocial Factors:** Socioeconomic status, education level, cultural beliefs, and previous pregnancy experiences can also influence psychological well-being and affect the risk of PIH.



Overall, addressing psychological determinants such as stress, anxiety, social support, coping mechanisms, and psychosocial factors is essential for preventing and managing pregnancy-induced hypertension.³

2. Need For the Study:

Hypertensive disorders of pregnancy are a major cause of maternal and fetal morbidity and mortality all over the world. Eclampsia is a well recognized complication of hypertensive disorders of pregnancy. One of the leading causes of maternal death (and disability) worldwide is pregnancy hypertension.⁴

In the developed countries like UK, eclampsia is rare, but in developing countries, the prevalence has been estimated to be up to 20 times higher. Of the estimated 600,000 women worldwide who die each year of pregnancy related complications, more than 50,000 die of pre eclampsia or eclampsia, and 99% of these deaths occur in developing countries.⁵

Incidence estimates from less-developed countries have. The incidence of hypertensive disorders of pregnancy increased from 16.30 million to 18.08 million globally, with a total increase of 10.92 % from 1990 to 2019. ⁶

The age-standardized incidence rate decreased, with an estimated annual percent change of

-0.68 (95 % confidence interval [CI] -0.49 to -0.86). The number of deaths due to hypertensive disorders of pregnancy was approximately 27.83 thousand in 2019. 6.9% in the Indian population. The incidence of preeclampsia in hospital practice in India varies from 5% to 15%, and that of eclampsia is about 1.5%.⁷ In India, over the years, from 1976 to 2014, the risk of eclampsia ranges from 0.179 to 5%, with the average being 1.5%.⁸ Every year, over 5.2 million women die from pregnancy-related complications world wide.⁹

3. Methods

It was a cross-sectional study included a sample of 100 women with pregnancy induced hypertension attending OBG units of selected hospitals of Bagalkot. A sample was selected by purposive sampling technique. The final sample size was determined with the help of power analysis using data from pilot study. As the number of determinants included in the study is 18 and 10 to 15 women with pregnancy induced hypertension visit at OBG units of selected hospitals of Bagalkot everyday

considering this in order to improve the credibility of predictor analysis sample size for the present study was 100.

Study Participants:

The study participants were women with pregnancy induced hypertension aged between 19-64 years at selected hospitals of Bagalkot. The sampling criteria included the women with pregnancy induced hypertension visit at OBG units of selected hospitals of Bagalkot.

Sample Size Calculation:

The final sample size was determined using the power analysis. The sample size was calculated considering the following criteria, $Z=1.96$ (95% confidence level), margin of error (e)=5% (0.05), Population proportion (P)=0.5. The calculated sample size was 88.36. The researcher enrolled 100 subjects and data was obtained from 100 subjects.

Setting of the Study:

The study was conducted at the OBG units of selected Hospitals of Bagalkot. HSK Hospital and research centre Bagalkot.

Data Collection Instrument:

The data regarding depression is to assess the depression among the women with pregnancy induced hypertension which consists of 20 items. It is developed by Center for Epidemiological Research Studies. Social support among women with pregnancy induced hypertension was measured using social provision scale which has got 24 items. All items are answered on a to 4 response. Psychological wellbeing was measured using Ryff's scale, a 14-item scale and it is 7-point scale that assesses the psychological wellbeing among women with pregnancy induced hypertension.

Ethical Clearance:

Ethical clearance certificate was obtained from Institutional ethical clearance committee, B.V.V.S Sajjalashree Institute of Nursing sciences, Bagalkote. (ref. No.). Written consent of participation was obtained from participants and their parents before data collection.



4. Statistical Analysis

The data was analysed using SPSS version 25. The obtained data was entered in MS excel sheet. The data was edited for accuracy and completeness. The categorical responses were coded with numerical codes. The data was presented with frequency and percentage distribution tables and diagrams. Frequency and percentage distribution were used for analysis of socio demographic and clinical characteristics. The description of women with pregnancy induced hypertension was presented with mean, standard deviation of Psychosocial factors (Depression, Social Support) and psychological wellbeing scores of women with pregnancy induced hypertension. Multiple linear regression analysis to find predictors of Psychosocial Factors and psychological wellbeing among women with pregnancy induced hypertension.

5. Data collection Procedure:

The data was collected study was conducted from 06-01-2025 to 11-02-2025 among 100 women with breast cancer. Psychosocial determinants and psychological evaluation in women with pregnancy induced hypertension. The tool is available as per preferred language (English or Kannada).

6. Results:

The percentage wise distribution the sample percentage by age showed that the majority of women with pregnancy induced hypertension (38%) were between the ages of 28-32years .76% of women with pregnancy induced hypertension are illiterate. (28%) hypertensive women are house wives and farmers. The area of residence (58%) was found to be from the urban area. Monthly income of (45%) is less than 10,000-20,000/-. Women with pregnancy induced hypertension (59%) are from nuclear families. As for children (30%), they have 2 or 3 children. 65% of women with pregnancy induced hypertension can take average care of themselves. 68% of women with pregnancy induced hypertension have no family history of hypertension. Women with pregnancy induced hypertension (73%) have no bad habits.

Table 1: Socio demographic, obstetrical and clinical characteristics of patient suffering with pregnancy induced hypertension.

Sl. No	Socio Demographic Variables	Frequency	Percentage
1	Age (Years)		
	18-22 years	7	7%
	23-27 years	30	30%
	28-32 years	38	38%
	32 and above years	25	25%
2	Educational Status		
	Illiterate	76	76%
	Upto 10 th stanadard	12	12%
	PUC	2	2%
	Degree and above	10	10%
3	Occupation		
	Housewife	28	28%
	Agriculture	28	28%
	Coolie	20	20%
	Employee	12	12%
	Self employed	12	12%
4	Family Monthly Income		
	Less than 10,000	10	10%
	10,000-20,000	45	45%
	20,000-30,000	5	5%
	30,000 and above	40	40%
5	Area of residence		
	Urban	58	58%
	Rural	42	42%
6	Type of family		
	Nuclear	59	59%
	Joint	41	41%
7	Family History of Hypertension		
	Yes	32	32%
	No	68	68%
8	Any Bad habits (Smoking/Alcholosim/ Tobacco chewing)		
	Yes	27	27%
	No	73	73%
9	Self care ability		
	Poor	10	10%
	Average	65	65%
	Good	25	25%



OBSTERETRICS VARIABLES

Sl. No.	Variables	Frequency	Percentage
1	Gravidity		
	1	15	15%
	2	30	30%
	3	30	30%
	4 and above	25	25%
2	Number of Parity		
	1	15	15%
	2	30	30%
	3	30	30%
	4 and above	25	25%
3	Gestational age at delivery		
	18-22	7	7%
	23-27	30	30%
	28-32	38	38%
	32 and above	25	25%
4	Number of ANC follow up		
	Once in a month	70	70%
	Twice in a month	30	30%
5	Number of babies		
	1	15	15%
	2	30	30%
	3	30	30%
	4 and above	25	25%

CLINICAL VARIABLES

Sl No.	Variable	Frequency	Percentage
1	Duration of disease condition		
	0-2 years	23	23%
	3-4 years	57	57%
	5 years and above	20	20%
2	History of Pregnancy induced hypertension		
	Yes	40	40%
	No	60	60%

Part- II: Assessment of Psychological Wellbeing among Woman with Pregnancy Induced Hypertension

When the distribution of women with pregnancy induced hypertension was examined according to their health status, it was seen that 45% had good mental health, 53% had moderate mental health, and 2% had mental health problems.

The mean and SD of Psychological wellbeing of women with pregnancy induced hypertension score is 84.5 ± 14.7

Part -III: Description of psychosocial determinants (Depression and Social Support) among women with pregnancy induced hypertension.

The classification model based on depression level showed that the majority of women with pregnancy induced hypertension (99%) experienced severe during treatment, while (1%) experienced mild depression or no depression at all. The mean and SD of depression score is 27.85 ± 5.9 .

The distribution pattern by level of social support showed that most women with pregnancy induced hypertension (76%) had high level of support and 24% still had relationship building support. Mean and SD of social support score is 72.07 ± 11.08 .

Education is the predictor among the socio demographic variables have negative predictor .

A significant equation was found ($F_{16,99}=4.5$, $R^2=0.46$, $P=0.000$). Social support and other wellbeing predict mental health in women with pregnancy induced hypertension. Education was the strongest negative predictor of psychological wellbeing of women with pregnancy induced hypertension. ($\beta=0.300$, $P<0.001$).



Part IV: Multiple linear regression analysis to find the determinants affecting psychological well being of women with pregnancy induced hypertension.

Coefficients		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	101.130	23.255		4.349	0.000
	Education	-4.610	1.762	-0.300	-2.616	0.001
	Occupation	0.243	1.176	0.023	0.206	0.837
	FMI	0.391	1.501	0.029	0.261	0.795
	Residence	6.105	15.737	0.207	0.388	0.699
	Type of Family	-10.910	15.998	-0.368	-0.682	0.497
	Family History of HTN	1.123	3.424	0.036	0.328	0.744
	Any bad habits	-4.248	3.930	-0.129	-1.081	0.283
	Self Care Ability	0.890	2.881	0.035	0.309	0.758
	Gestational Age	-1.228	1.859	-0.076	-0.661	0.511
	No. of ANC follow Ups	-2.002	3.425	-0.063	-0.585	0.560
	No. of Live Children	0.917	1.614	0.064	0.568	0.572
	Dauration of Disease Condition	-0.234	2.639	-0.010	-0.089	0.929
	Hystory of PIH	-3.609	4.106	-0.100	-0.879	0.382
	Depression	-0.014	0.294	-0.006	-0.048	0.962
Social Support	0.151	0.156	0.112	0.966	0.337	

Part - I: Description of sample in terms of their socio - demographic and clinical characteristics. The percentage wise distribution of sample according to their age describes that most of the women with the pregnancy induced hypertension (38%) were from age group 28-32 years. Majority (76%) of the women with pregnancy induced hypertension were illiterate. Majority (28%) of the women with pregnancy induced hypertension were employees and agriculture workers. Majority (58%) of women with pregnancy induced hypertension were from urban area.

The findings of the present study are consist and supported with the study conducted by Liu Q, X Wang X, Zhang Y, J Li J, Wang L, the most of the women pregnancy induced hypertension with age group 28to 35 years¹⁰.

The findings of the present study are consist and supported with the study conducted by Radheshyam B, Shikha M Savitri S. the most of the women with pregnancy induced hypertension according to education describes 76% had illiterate.¹¹

The percentage wise distribution of women with pregnancy induced hypertension according to their area of residence revels that majority of women with pregnancy induced hypertension 58% were from urban area. Majority 45% were having monthly income between 10,000 to 20,000. Majotity of women with pregnancy induced hypertension 59% were belongs to nuclear family.

Deborah M, Augustinus A, Fred Y, Anthony E, Lyonne M, Sam N, Charles A The findings of the present study are consist and supported with the study conducted by the most of women with pregnancy induced hypertension 58% from urban area¹².

The percentage wise distribution of women with pregnancy induced hypertension according to their number of parity revels that majority of women with pregnancy induced hypertension 30% had 2 to 3 children. Majority 68% women with pregnancy induced hypertension had a positive family history. The findings of the present study are consist and supported with the study conducted



Jurimoni G, Sultana J, Parthajyoti N The findings of the present study are consist and supported with the study conducted by the most of women with pregnancy induced hypertension 9.1% were from multigravida.¹³

Cincotta R Brennecke S The findings of the present study are consist and supported with the study conducted by the most of women with pregnancy induced hypertension 22% had a positive family history.¹⁴

The percentage wise distribution of women with pregnancy induced hypertension according to their self care ability majority 65% of average. Majority of 38%of women were with gestational age at delivery (28-32 years). Majority 70% PIH women with number of ANC follow up as once in a month.

Jean J Yongmei H, Jason D, Dena G, Mary E, Alexander M. The findings of the present study are consist and supported with the study conducted by the most of women with pregnancy induced hypertension were from the age group of 45-54 were at 228% higher risk for AHF/PE (95% CI 118-393%).⁷

The percentage wise distribution of women with pregnancy induced hypertension according to their number of babies revels that majority of 30% had 2 to 3 children.Majority of 57% had duration of disease as 3-4 years. Majority of 60% of Mother without history of hypertension.

Jurimoni G, Sultana J, Parthajyoti N The findings of the present study are consist and supported with the study conducted by the most of women with pregnancy induced hypertension 9.1% were had 2-3 children.¹⁵

Part II: Description of psychological wellbeing among women with pregnancy induced hypertension

The percentage wise distribution of women with pregnancy induced hypertension according to their psychological well being describes that most of the women with the pregnancy induced hypertension (53%) have moderate psychological wellbeing

Finding of the present study constient and supported with the study conducted by **Bernardini, F, Gostoli, S, Rafanelli C RoncuZZi R, Veronesi, Maddalen B** most of the women with pregnancy induced hypertension have a moderate wellbeing.¹⁶

Section B: Mean and SD of psychological wellbeing score of women with pregnancy induced hypertension.

Mean and SD of Psychological wellbeing score is 84.5 ± 14.7

Findings of the study are consistent and supported with study conducted by by **Bernardini, F, Gostoli, S, Rafanelli C RoncuZZi R, Veronesi, Maddalen B** 29.9 ± 6.87 versus 37.14 ± 6.96 .¹⁷

Part III: Description of psychosocial determinants (Depression and Social Support) among women with pregnancy induced hypertension.

Section A: Description of subjects in terms of their depression of women with pregnancy induced hypertension.

The percentage wise distribution of sample according to their social support describes that most of the women with the pregnancy induced hypertension (100%) had clinical significant clinical depression.

Findings of the present study are consistent and supported with study conducted by **Sheeba B, Anitha N, Chandra S, Murali K, Shubhashree V**, et al most women with pregnancy induced hypertension had severe depression.¹⁷

Section B: Mean and SD of depression score of women with pregnancy induced hypertension.

The Mean, SD of depression of women with pregnancy induced hypertension is 27.85 ± 5.9 .

Findings of the study are consistent and supported with study conducted by **Sheeba B, Anitha N, Chandra S, Murali K, Shubhashree Vet al**. The total depression Mean and SD of the women with pregnancy induced hypertension is 23.02 ± 3.40 .¹⁷

Section C: Description of subjects in terms of their Social support of women with pregnancy induced hypertension.

The percentage wise distribution of women with pregnancy induced according to the social support describes that the majority (76%) of women with pregnancy induced hypertension have high social support.



Findings of the study are consistent and supported with study conducted by **Sarmasti N, Ayoubi H, Mahmoudi Heydarpour-S** the result shows that they receive the high social support.¹⁸

Section D: Mean and SD of social support score of women with pregnancy induced hypertension.

The Mean and SD of social support score of women with pregnancy induced hypertension is 72.07 ± 11.08

The finding of the present study are consistent and supported with study conducted by **Sarmasti N, Ayoubi H, Mahmoudi Heydarpour-S** the result shows that The mean score of perceived social support in the preeclampsia and non-preeclampsia groups were 69.88 ± 7.3 and 76.80 ± 7.6 respectively ($P < 0.01$).¹⁸

Part 4: Multiple linear regression analysis to find the determinants.

Assessment of determinants affecting psychological wellbeing of women with pregnancy induced hypertension with their socio demographic and clinical characteristics. Social support and others therapies are positively predicted the Psychological Wellbeing of women with pregnancy induced hypertension.

Findings of supportive study are consistent and supported with the study conducted by Martina P, Sebastiaan R.

Findings of supportive study are consistent and supported with the study conducted by **Sheeba B, Anitha N, Chandra S, Murali K, Shubhashree Vet al.** The total depression Mean and SD of the women with pregnancy induced hypertension is 23.02 ± 3.40 .¹⁷

Limitations of the Study

This study is one of the first to examine factors affecting the psychological well-being of women with pregnancy induced hypertension. Other cultural and clinical factors were also included to find the relationship between depression, social support, and the Ryff Mental Health Scale in women with pregnancy induced hypertension. Some psychological factors, such as work environment and relationships, may be included to determinant impact on the health of women with pregnancy induced hypertension.

7. Conclusion and Recommendation

The findings showed that women with pregnancy induced hypertension 45% in good mental health, and 99% were has clinically significant depression. 76% of women with pregnancy induced hypertension received social support, while 24% received modreste support. Multiple linear regressions was used to evaluate the impact of health on women with pregnancy induced hypertension and significant correlation was found ($F_{16,99}=4.5$, $R^2=0.46$, $P=0.000$). Education was the strongest negative predictor of psychological wellbeign of women with pregnancy induced hypertension. ($\beta=0.300$, $P<0.001$).

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