



## **Assessment of the Pregnancy Induced Hypertension and Gravida in Teen Age Girls at People Medical College Hospital Nawabshah Pakistan**

**Ruqayya Chandio<sup>1</sup>, Jawaid Hussain Lighari Baloch<sup>1</sup>, Nusrat Fozia Pathan<sup>2</sup>,  
Attia Ayoob<sup>3</sup>, Noor Ali Samoon<sup>1</sup>, Abrar Ali Sheikh<sup>1</sup> and Arslan Ahmer<sup>4\*</sup>**

<sup>1</sup>Department of Community Medicine, People's University of Medical and Health Sciences for Women (PUMHSW), Nawabshah, Sindh, Pakistan.

<sup>2</sup>Department of Obstetrics and Gynae, Khairpur Medical College (KMC), Khairpur Mirs, Sindh, Pakistan.

<sup>3</sup>Consultant Cardiologist, Nawabshah, Sindh, Pakistan.

<sup>4</sup>Institute of Pharmaceutical Sciences, People's University of Medical and Health Sciences for Women (PUMHSW), Nawabshah, Sindh, Pakistan.

### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author RC designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors JHLB, NFP, AA, NAS, AAS and AA managed the analyses of the study and managed the literature searches. All authors read and approved the final manuscript. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Objectives:** To assess of the pregnancy induced hypertension and gravida in teen age girls at People Medical College Hospital Nawabshah Pakistan.

**Methodology:** This cross-sectional study was carried out on 200 pregnant women from Gynecology & Obstetrics Department of Unit-1 and 2 People Medical College Hospital Nawabshah from January 2018 to December 2018. The sampling technique was convenience sampling. The frequency and association between the hypertension and Gravida were observed. Blood Pressure

was taken by sphygmomanometer of mercury type B.P apparatus from 200 pregnant women and interviewed all the study subjects. A well designed and structured questionnaire (consist of age, gravida and hypertension related questions) was used for data collection and analyzed statistically. The data was analyzed statistically by SPSS Version 20.0.

**Results:** The mean age of married teenage girls was 16.6 Years with SD  $\pm$  2.3 Years. The study results show that 23.5% of Teenage mothers were suffering from Pregnancy Induced Hypertension. 83% women participants were in the age group of 17 to 19 years. Majority 80.3% of marriages were in the age of 13 to 16 years. 76% of women were in 1<sup>st</sup> and 2<sup>nd</sup> Gravida.

**Conclusion:** One fourth of Teenage married girls are suffering from Pregnancy Induced Hypertension. The maternal age of 17-19 years has been found most common age group for pregnancy induced hypertension, more common in 1<sup>st</sup> and 2<sup>nd</sup> Gravida.

*Keywords: Pregnancy induced Hypertension; Teenage Girls; Gravida; Nawabshah.*

## 1. INTRODUCTION

Pregnancy induced hypertension (PIH) is Systolic blood pressure 140 mm Hg or above and diastolic blood pressure 90 mm Hg or above in the 24<sup>th</sup> week of gestation [1]. Increased blood pressure in Pregnancy is called as Pre-eclampsia one of complicating problem of pregnancy and can be point out by hypertension, (HTN), edema due to fluid retention, and protein urea [2]. The high blood pressure in pregnancy is one of the most frequent public health problems worldwide, about 6 to 8% of all pregnancies are complicated by (HTN). 10-15% maternal deaths in developing world and 18% in developed world are due to increase in blood pressure during the pregnancy [3]. Disorders disorder of increase blood pressure in pregnancy encompasses a spectrum of conditions including pre-existing high blood pressure, high blood pressure due to pregnancy, preeclampsia/eclampsia, and superimposed high blood pressure. All of these conditions vary from a mild increase in hypertension at full term without other complications to severe problems with likely for considerable harm for mother, fetus and neonate. Internationally, a considerable number of mothers die due to pregnancy-related causes every year and more than half of them deaths happen in sub-Saharan Africa [4]. Marriage in early ages adversely affects upon the health of reproduction and outcomes, and this practice is common alarmingly still now. Jointly to do hard work to end teen age marriage, it is necessary to make available sufficient care of health to whom who are already married in teenage. It is expected that the married girls get pregnant in the 1<sup>st</sup> year of their marriage and are at increased risk of mother and fetus morbidity and mortality, comparison to females get married at the age of 20-24 years. It should be well-known that the girls get pregnant at an early age are

married are at great majority. Teen age pregnancy is considered when a woman becomes pregnant before completing 18 years of age. Between the ages of 18 to 19 years' teenagers, in United States, there is decrease in the birth rate from 60 per 1000 in 2004 to 41 per 1000 in 2014 [5]. Teenage pregnancy and child birth is the second most common complication and cause of death for adolescent (Teenage) girls. Every year, around 70,000 pregnant mothers die in the countries where middle or low income related with teenage pregnancies. The women get pregnant at the age below 15 or 16 years have greater risks of morbidity and mortality compared with older mothers. The adolescent marriage is related to so many health hazards. These teen ages Married females have increased possibility to become mentally ill and are more probably to experience physical and sexual violence at the hands of their spouses than unmarried girls. They got least opportunity to carry on their education and employment and they it is very hard to get participation in family circle decisions. Evidence from India describes that marriage at teen ag is associated with high socio-economic vulnerabilities and increased gender inequities, beside with a lesser possibility of antenatal care and contraceptive use [6].

For the Asian teen age birth rate from 15 to 19 years old decreases from 27 per 1000 women in 2004 to 18 per 1000 women in 20014. The rates of teenage pregnancy still remain high. According to the WHO every year 20 – 24 million adolescents resort to abortion. It is estimated by the WHO that the risk of death in teenage girls 13-19 years is two times greater than the ages of 20 – 24 years. The rate of the maternal mortality is five times greater in between 13 and 14 as compared to the death rate in the age group of about 20 years [7]. The etiology of Pregnancy induced hypertension is still unclear; however,

the number of theories relating to dietary factor, immune system, the genetics and the maternal vascular system has been together considered in pregnant mothers. Among the pregnant mothers generally there are many risk factors, proven by many studies enhance the risk of PIH include the pre-existing HTN, diseases of kidney, diabetes, HTN with a previous pregnancy, age of mothers less than 20 or more than 40, or triplet pregnancy, nulli-parity, and pre-pregnancy obesity [8,9]. The teenage mothers face so many health hazards during pregnancy and at the time of delivery, which is of about 15% global load of diseases for mother's morbidity and the death of the mother which is up to 13% [10,11]. It is estimated by the WHO that the risk of death in teen age girls 13-19 years is two times greater than the ages of 20-24 years. The rate of the maternal mortality was 5 times greater in between 13 and 14 years as compared to the death rate in the age group of about 20 years [12]. The state of affairs in countries of South Asia are uncaring; so that there is greater shares of pregnancy in teenage because of the system of marriages in younger age in this region and consequently society expect to have a kid soon after marriage [13]. Disorders of high blood pressure globally are a public health problem in pregnancy. Worldwide studies showed that higher rates of maternal mortality associated with preeclampsia and eclampsia, prenatal mortality, and morbidity, preterm and small for gestational age deliveries. Pregnant mother with hypertension are five times more likely to have perinatal death compared with the pregnant mother without disorders of high blood pressure in pregnancy. Increased blood pressure in pregnancy complicates 10% of all pregnancies. Around 40,000 women, mostly belongs to developing countries, due to preeclampsia or eclampsia die each year. Preeclampsia alone is estimated to account for about 40% to 60% of maternal deaths in developing countries. If the PIH is not treated early it can cause seizures and even maternal morbidity and mortality. Due to these risk factors it is necessary to deliver the patient to prevent these complications, before completion of 37 weeks' gestation. The symptoms of HTN vary in each pregnant women which may include protein urea, oedema, sudden weight gain, changes in vision such as blurred or double vision, nausea, vomiting, pain in the abdomen of the right side or the pain in the stomach, or passing urine in decreased amount, changes in the functions of the liver and the kidney. Diagnosis is based on the hypertension levels, and other symptoms which can help to

establish PIH [14,15]. The purpose of this study is to assess the pregnancy induced hypertension in teen age girls and to see the association of Gravida and age with pregnancy induced hypertension in concern to recognize the burden of this diseases and effective measures which should be taken to decrease in morbidity and mortality in teen age pregnant mothers.

## 2. METHODOLOGY

This cross-sectional study was carried out on 200 pregnant women at Indoor and Outdoor Patients from Gynecology & Obstetrics Department of Unit-1 and 2 PMC Hospital Nawabshah from January 2018 to December 2018 at Indoor and Outdoor Patients. Sample size is obtained by using standard formula Rao soft calculator considering confidence interval 95%, margin of error 5%. Inclusion criteria pregnant women of 3<sup>rd</sup> trimester age up-to 19 years of age. Exclusion criteria pregnant women over 20 years of age, not willing, and known cases of hypertension (by history). Blood Pressure was taken by sphygmomanometer of mercury type B.P apparatus from 200 pregnant women and interviewed all the study subjects. A well designed and structured questionnaire (consist of age, gravida and hypertension related questions) was used for data collection and analyzed statistically. The data was analyzed statistically by SPSS Version 20.0.

## 3. RESULTS

A total of two hundred 200 pregnant women in third trimester were included and examined for the pregnancy induced hypertension in Gynecology and Obstetrics department of PMCH Nawabshah.

Frequency of high blood pressure is 23%, while 77% were normotensive as shown in Fig. 1.

67% of the pregnant women were in the age group of 13 to 16 years of age while only 33% were in the age group of 17 to 14 years as described in the Table 1.

76% of pregnant women were in Gravida 1 and Gravida 2. While only 25% were in Gravida 3 & 4 as shown in the Table 2.

The Gravida 1 is more prone for hypertension as described in Table 3.

#### 4. DISCUSSION

The study results revealed that the hypertension in teenage pregnancy is 23.5%. The findings about frequency of PIH in present study are similarly reported by the study conducted by Dr. Shahida Sheikh Gynecologist at Sheikh Zaid Women Hospital Chandka Medical College Larkana at the same age group 13 to 19 years shows frequency of 21.47% [16]. Study results proved that the maternal age of 13-16 years has been found (70% of total PIH) to be the significant age group for pregnancy induced hypertension from 17 to 19 years' age group (30%). This could be explained by the research conducted by Muna A B of College of Health Baghdad. The results of her study also revealed that the extreme ages of reproductive years are

well known risk factors for hypertension during pregnancy with high incidence rates in teenagers. This study concludes that the factors that might be related to hypertension in pregnancy were early reproductive age, housewives, family history of hypertension and short birth intervals [17].

This study results reveal that the age of marriage of group 13 to 16 years is more (67% of total PIH) at risk for hypertension than in 17 to 19 years (33% of Total PIH). The present results also show that the primi - gravida (53%) are more prone to hypertension in comparison to multi - gravida (47%) and the pregnant women who are in 9th month are more prone (28.75%) for hypertension than the 7<sup>th</sup> and 8<sup>th</sup> month of the pregnancy.

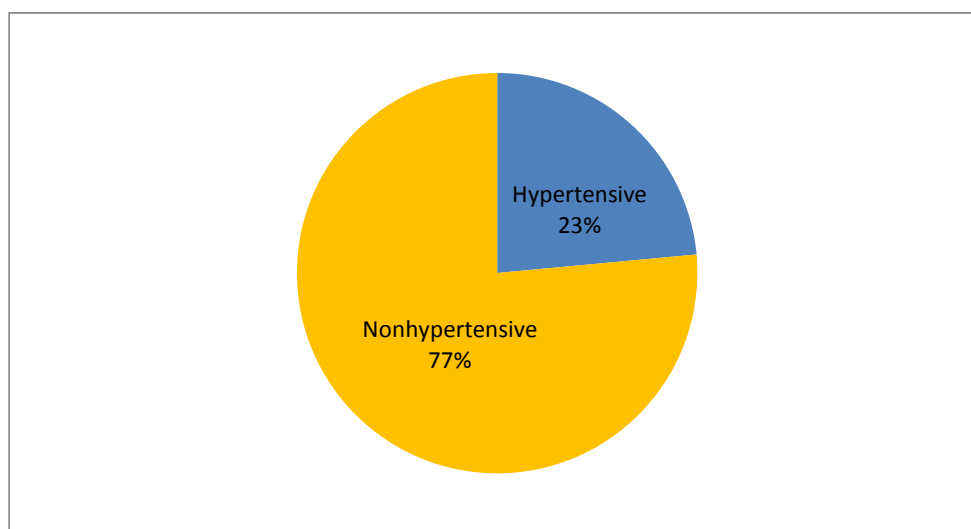


Fig. 1. Frequency of pregnancy induced hypertension in teenage married girls

Table 1. Age wise distribution of the participants

Age	Frequency	Percentage %	Mean Age	Standard Deviation
13-14 Yrs	60	30	16.6 Yrs	± 2.3 Yrs
15-16 Yrs	74	37		
17-18 Yrs	36	18		
19 Yrs	30	15		
<b>Total</b>	<b>200</b>	<b>100</b>		

Table 2. Gravida wise distribution of the participants

Gravida (G)	Frequency	Percentage %
G1	93	47%
G2	57	29%
G3	37	19%
G4	13	6%
<b>Total</b>	<b>200</b>	<b>100</b>

**Table 3. Frequency and association of gravida and hypertension among the participants**

Gravida (G)	Study group				Total
	Hypertensive		Non-hypertensive		
G1	24	25.81%	69	74.19%	93
G2	13	22.41%	45	77.59%	58
G3	9	24.32%	28	75.68%	37
G4	1	8.33%	11	91.67%	12
<b>Total</b>	<b>47</b>	<b>23.5%</b>	<b>153</b>	<b>76.5%</b>	<b>200</b>

Results of the study also show that the risk of pregnancy induced hypertension significantly increased in prime Gravida (25.8%) than multi gravida, this result agree with study of Assis, 2008, which identified prime parity as a risk factor for pregnancy induced hypertension. Pierre, et al, 2011 in Cameroon, they found that null parity was associated with a nearly 2 fold the risk of developing hypertension disorders in pregnancy, because, an indication of a genetic cause is the observation that women are at greater risk of preeclampsia in their first gravidity if they have a sister or mother who has experienced preeclampsia. There is no any significant association between previous abortions and pregnancy induced hypertension. The results agree with Pierre, et al, 2011 in Cameroon, they found no association between history of abortions with induced hypertension [18,19].

Pierre, et al, 2011 in Cameroon showing similar results with this study finding with different factors associated to hypertensive disorder in pregnancy. They included early teenage, primi-gravida and family history of hypertension. At multivariate analysis, the risk of having hypertension during pregnancy remained three times greater for primi-gravida having family history of hypertension [20,21].

## 5. CONCLUSION

About 25% of Teenage married girls are suffering from Pregnancy Induced Hypertension. The maternal age of 13-16 years has been found most common age group for pregnancy induced hypertension and the primigravida are at increased risk of developing hypertension. Efforts need to be directed towards strict enforcement of laws prohibiting teenage marriage in Pakistan. Health education and public awareness of the pregnancy induced hypertension regarding the risk factor which effect on their blood pressure by mass media should be promoted, which will not only save the life of baby as well as mother but

will also be beneficial for the development of a good healthy nation.

## 6. LIMITATION

Study needs more exploration by studying cohort group for better new findings.

## CONSENT

Written consent was taken from patients and next of kin.

## ETHICAL APPROVAL

The Ethical Review Committee of P.M.C.H. gave ethical review approval to conduct the study.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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