Original paper

# Knowledge About Pregnancy Induced Hypertension Among Pregnant Women Attending Gynecology and Obstetrics Teaching Hospital in Kerbala

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## Abstract

**Background**: PIH is a pattern of high blood pressure during pregnancy. It is one of the major causes of maternal mortality and neonatal morbidity in the world. It can be prevented by Health education for early detection and proper management of the disease and its complications.
**Objectives**: To determine the level of knowledge of the pregnant women towards PIH.
**Methods**: A cross sectional study, was conducted among pregnant women in outpatient clinic, wards of gynecology and obstetrics teaching hospital, in Karbala, Iraq within a period from 1st of March till 1st of June 2018A convenient sample of 295 pregnant women, data collection was done through direct interview., Consent to participate in the study was obtained in a form of verbal consent using a special questionnaire for the purpose of the study. Student T-test and ANOVA test were used to identify factors associated with the pregnant knowledge.
**Results**: In this study, 81.7% of the pregnant women had heard about PIH. Their source of information was from relatives and friends, then health care providers. About half of the participants had a weak knowledge score (46.9%). The knowledge score is significantly associated with the age of the participants, type of family, past medical history of PIH, past medical history of gestational diabetes, practicing sport and regular antenatal care visits.
**Conclusions**: Generally, the findings of the study showed that the knowledge about PIH was poor among the pregnant participants, that indicates the need to increase public awareness and knowledge about the disease**.**

**Keywords:** Pregnancy induced hypertension (PIH), Preeclampsia, Knowledge.

## Introduction

Pregnancy induced hypertension (PIH) can be classified to :1-preeclampsia 2-chronic hypertension 3-gestational hypertension is a pattern of high blood pressure during pregnancy [(1)]. It is one of the major causes of maternal mortality and perinatal morbidity in the world [(2)].Generally, it responses for 76000 and 500000 of maternal and infant deaths respectively each year[(3)]. Eighteen percent of maternal deaths had been contributed to PIH, and it forms the second most common cause of maternal deaths after hemorrhage [(4)]. Preeclampsia attributes to 16% of maternal deaths in developing countries, 25% of maternal deaths in Latin America , 10% of deaths in Asia and Africa[(3)]. In Iraq according to annual statistical report produced by the ministry of health 2016 the maternal hypertension forms 12.4% of maternal death and being the third direct cause of maternal mortality after postpartum hemorrhage and pulmonary embolism [(5)]. Hypertension during pregnancy is classified into four groups, as approved by the National High Blood Pressure Education Program (NHBPEP)): gestational hypertension , Preeclampsia-Eclampsia, Chronic hypertension and

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Preeclampsia superimposed on chronic hypertension [6].

*Gestational Hypertension*: Occurs in the 2nd half of pregnancy in a previous normotensive woman without considerable proteinuria or other manifestations of preeclampsia [7].

*Preeclampsia / Eclampsia*: Hypertension with proteinuria or hypertension and target organ damage with or without proteinuria after 20th week of gestation in normotensive woman. Preeclampsia with seizures is referred as eclampsia[8].

Predisposing factors for preeclampsia include advanced maternal age, increased body mass index , primigravida, multifetal pregnancy ,Chronic Hypertension, and Diabetes Mellitus. The occurrence of preeclampsia is more in twin pregnancy than in single one (the incidence is 6-31%)[9].To diagnose PE Blood pressure ≥ 140/90 mmHg , on two occasions, at least two - four hours apart and the presence of one or more plus proteinuria on dipstick testing in clean catch urine specimen taken at least four hours apart and persisting throughout gestation , or Protein excretion more than 300 mg in a 24 hour specimen of urine .The other features include nausea vomiting ,epigastric or right hypochondrial pain ,edema, severe headache, visual disturbances , and oliguria [10, 11]. Maternal and fetal complications from PE include ischemic heart disease, stroke , liver and kidney injury, abruptio placentae, disseminated intravascular coagulation (DIC) and HELLP syndrome (hemolysis, elevated liver enzyme levels, and low platelet levels). Fetal complications include growth restriction, fetal distress, preterm delivery, stillbirth and neonatal asphyxia [12]. Knowledge has an important role in the prevention and control of diseases. Knowledge means what people understand of any given subject [13]. It is suggested that 50% of the complications can be prevented by proper patient education and counseling .This accentuate the need for women with PIH to understand and realize the alarming features associated with PIH and request the appropriate care[14].

## Subject and Method

A cross sectional study, was conducted in outpatient clinic and in-patient wards of Gynecology and Obstetrics Teaching Hospital in Karbala, Iraq. Within a period from 1st of March till 1st of June 2018, the data collections took about two hours per day, three days a week, purposive and convenient sampling of 295 pregnant women who attended gynecology and obstetrics teaching hospital in Karbala for any cause. A special questionnaire prepared for the purpose of the study based on direct interview with the pregnant women. It is composed of three parts socio-demographic data that include age, marital status, occupation, residence (rural or urban), education, economic level and type of family (nuclear or extended). second part include past obstetric and medical history that include gestational age, parity, past history of gestational and chronic hypertension, past history of gestational diabetes, family history of PIH. Third part include knowledge question that include ten closed ended questions about risk factors, sign and symptoms, complications and preventive measures of PIH. Questionnaire had been tested by a pilot study included 16 pregnant women that not included in final study, to assess the feasibility of the questionnaire and to overcome any difficulties or related issues, that may arise during data collection, few modifications were done on the questionnaire according to the results of pilot study. Administrative approval on research conduction was obtained from Kerbala university/college of medicine, Karbala health Directorate and Karbala teaching hospital of gynecology and obstetrics, oral informed consent taken from each interviewee at beginning of interview.

Data was analyzed using statistical package for the social sciences (spss version 23)

computer software program. Descriptive statistics were presented as frequency tables, Continuous variables were expressed as mean ± standard deviation and categorical variables as numbers and percentages. Student –t test and ANOVA test used to find the association between categorical variables and continuous variables. The association was considered to be statistically significant when the P-value was found to be less than 0.05.

***Scoring system of participants' knowledge:***

The knowledge of the pregnant participants about PIH includes ten questions, from question 3-12 all ten questions included in the knowledge score were weighted equally. Each question was worth one (1) point. the main questions 3,4,5,11,12 and main question with subdivisions 6,7,8,9,10 The answer of question was as the following: I don't know=0 score, No answer=0 score and Yes answer=1 score.

The total score of pregnant knowledge were 34 scores.

For a maximum score of 34 points (100%), and the total knowledge score was calculated as

$$\frac{\text{subject's knowledge score}}{\text{maximum knowledge score}(34)} \text{x}100\%$$

*levels of knowledge were Classify into 3 groups:*

Poor knowledge: 0 - 49%, fair knowledge: 50 - 69% and good knowledge : 70 - 100%.

## Results

A total of 295 pregnant women were interviewed, the mean age was 25.3(±5.9). Other socio-demographic factors are shown in table 1.

The mean week of gestation was 26.1(±8.7) weeks. ninety two(31.2%) pregnant participants were primigravida and 203 (68.8%) pregnant participants were multigravida, other variables as shown in table 2.

**Table 1.** Distribution of pregnant women among some socio-demographic variables.

| Variable | | Frequency | Percent |
|---|---|---|---|
| Age | <20 years | 35 | 11.9% |
| | 20-30 years | 191 | 64.7% |
| | 30-40 years | 62 | 21% |
| | >40 years | 7 | 2.4% |
| | Mean (±SD) = 25.3(±5.9). Maximum=40 years. Minimum =14 years. | | |
| Marital Status | Married | 293 | 99.3% |
| | Separated | 2 | 0.7% |
| Educational Level | Illiterate | 37 | 12.5% |
| | Read and write | 21 | 7.1% |
| | Primary school | 87 | 29.5% |
| | Secondary school | 82 | 27.8% |
| | University | 68 | 23.1% |
| Occupation | Housewife | 241 | 81.7% |
| | Student | 20 | 6.8% |
| | Employee | 34 | 11.5% |
| Residence | Rural | 59 | 20% |
| | Urban | 236 | 80% |
| Economic Level | Weak | 117 | 39.7% |
| | Fair | 144 | 48.8% |
| | Good | 34 | 11.5% |
| Type of Family | Extended | 145 | 49.2% |
| | Nuclear | 150 | 50.8% |

The number of the pregnant participants that did not hear about PIH was 54 participants, while the pregnant participants that hear or know about PIH (241),about 153(63.5%) participants know about PIH from their relatives and friends, about 61(25.3%) Participants knew about PIH from medical staff, only 22(9.1%) participants know about PIH from media ,and 5(2.1%) participants know about PIH from the school/university. About 20.70% of the participants had a good knowledge about PIH as shown figure 1.

The relation of some socio-demographic Factors to Participants Knowledge Scoring are shown in the following table (table 3)

**Table 2.** Distribution of some obstetric, gynecological, past medical and family history among pregnant participants

| Variable | | Frequency | Percent |
|---|---|---|---|
| Weeks of Gestation | <13 weeks | 28 | 9.5% |
| | 13-27 weeks | 130 | 44.1% |
| | >27 weeks | 137 | 46.4% |
| Number of Parity | Primigravida | 92 | 31.2% |
| | Multigravida | 203 | 68.8% |
| Past Medical History of PE | + ve | 31 | 10.5% |
| | -ve | 264 | 89.5% |
| Past Medical History of Chronic Hypertension | + ve | 6 | 2% |
| | -ve | 289 | 98% |
| Past Medical History of Gestational Diabetes | + ve | 10 | 3.4% |
| | -ve | 285 | 96.7% |
| Family History of Gestational Hypertension | + ve | 42 | 14.2% |
| | -ve | 236 | 80% |
| | Don't know | 17 | 5.8% |
| History of Practicing Sport | Yes | 34 | 11.5% |
| | No | 261 | 88.5% |
| History of Folic Acid Intake | Yes | 241 | 81.7% |
| | No | 54 | 18.3% |
| Regular Antenatal Care Vsitis | No | 253 | 85.8% |
| | Yes | 42 | 14.2% |

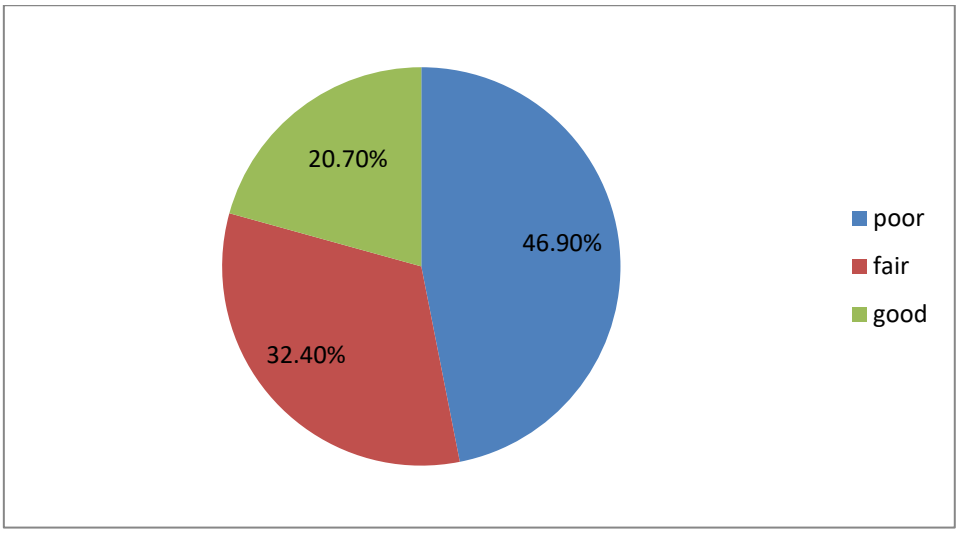


**Figure 1.** Distribution of the knowledge score among the participants.

Regarding the relation of Some Obstetrics, Gynecological and Past Medical History with Knowledge Scoring:

It was found that history of PIH and Past Medical History of Gestational Diabetes were significantly associated with knowledge score as shown in table 4

**Table 3.** Relation of Some socio-demographic Factors to Participants Knowledge Scoring:

| Variable | | Frequency | Scoring of pregnant knowledge | |
|---|---|---|---|---|
| | | | Mean (±SD) | Significant |
| Age | <20 years | 27 | 15.7(±4.2) | 0.001* |
| | 20-30 years | 149 | 17.6(±5.7) | |
| | 30-40 years | 58 | 19.1(±5.2) | |
| | >40 years | 7 | 24.7(±5) | |
| Educational level | Illiterate | 23 | 17(±3.5) | 0.106* |
| | Read and write | 14 | 18.2(±6.7) | |
| | Primary school | 72 | 16.6(±5.3) | |
| | Secondary school | 72 | 18.6(±5.7) | |
| | University | 60 | 19.1(±6.2) | |
| Occupation | Housewife | 195 | 17.9(±5.4) | 0.175* |
| | Student | 18 | 16.4(±4.1) | |
| | Employee | 28 | 19.5(±7.5) | |
| Economic level | Weak | 94 | 17.7(±5.4) | 0.839* |
| | Fair | 117 | 18.2(±5.6) | |
| | Good | 30 | 18.1(±6.8) | |
| Residence | Rural | 45 | 18.5(±5.7) | 0.52** |
| | Urban | 196 | 17.9(±5.6) | |
| Type of family | Extended | 111 | 16.7(±5.2) | 0.002** |
| | Nuclear | 130 | 19(±5.8) | |

*ANOVA test ** Student T test Significant p value ≤ 0.05.

**Table 4.** Relation of Some Obstetrics, Gynecological and Past Medical History with Knowledge Scoring:

| Variables | | Frequency | Scoring of pregnant knowledge | |
|---|---|---|---|---|
| | | | Mean (±SD) | Significant |
| Weeks of Gestations | First trimester | 24 | 18(±4.8) | 0.83* |
| | Second trimester | 104 | 17.9(±5.9) | |
| | Third trimester | 115 | 17.9(±5.6) | |
| Number of Parity | Primi gravida | 62 | 17.5(±5.2) | 0.45** |
| | Multigravida | 179 | 18.1(±5.8) | |
| Past Medical History of PIH | +ve | 31 | 21.1(±4.2) | 0.001** |
| | -ve | 210 | 17.5(±5.7) | |
| Past Medical History of Chronic Hypertension | +ve | 6 | 20(±6.1) | 0.38* |
| | -ve | 235 | 17.9(±5.6) | |
| Past Medical History of Gestational Diabetes | +ve | 10 | 22(±6.3) | 0.02** |
| | -ve | 231 | 17.8(±5.6) | |
| Family History of PIH | +ve | 40 | 19(±6.6) | 0.184* |
| | -ve | 191 | 17.9(±5.5) | |
| | Don't know | 10 | 15.4(±2) | |
| History of Practicing Sport | Yes | 34 | 21.6(±5.2) | 0.002** |
| | No | 207 | 17.4(±5.4) | |
| History of Folic Acid Intake | Yes | 199 | 18.1(±5.8) | 0.302** |
| | No | 42 | 17.1(±4.9) | |
| Regular Antenatal Care Visits | No | 217 | 17.7(±5.6) | 0.013** |
| | Yes | 24 | 20.7(±5.2) | |

*ANOVA test ** Student T test ,significant p value ≤ 0.05

## Discussion

In the present study the majority (81.7 %) of the pregnant participants had heard about PIH while (18.3% )of the participants had not heard about it .These findings was online with a study done in Nigeria in (2016) [15].

The main source of knowledge by the participants was from friends/relatives (63.5%) followed by health care providers (25.3%), media 9.1%, school/university 2.1%. Unfortunately, health care providers were not reported as a most popular source of knowledge in our study, which can be relating factor to their inadequate knowledge towards PIH.

These results are in contract with the study done in Utah by Wilkinson (2018) ,the main sources of information were health care provider , family/friends and website [16],another study done in Nigeria by Fadare (2016) the most popular source of information were hospitals and clinics[15], while a study done by Salim and Kuriakose (2017) [17], the main source of knowledge was parents, friends and relatives followed by heath personnel ,this similar to our study in their source of knowledge.

This study has showed that the larger percentage of pregnant participants (46.9%) had poor knowledge. This similar to recent study done by Eze (2018) [18], India at 2014 [19], and in Iran at 2006 [20] . Small percentage (20.7%) had good knowledge about PIH Which opposite the study done by Wilkinson (2018) that showed the higher percentage had a high level of awareness [16].

Regarding the associated factors with the knowledge score, the age of the participants was associated significantly with the knowledge score (increase score with increase age). This similar to study done by Namath Jos (2010) [21], while in another study done by Muhammad Safvan (2014) it was showen that no association between age and knowledge score exists [22].

Regarding type of the family in this study is also associated significantly with the knowledge score, the pregnant who live in nuclear family had a higher knowledge score than those who live within an extended family. This may be explained the mother can take care of her personal requirement in a considerable way and she will be more relaxed than she would be in an extended family. This opposite to the study done by Namath Jos (2010) in India which showed that no significant association between the type of family and knowledge score exists[21].

In this study there was no significant association between the educational level and the knowledge score while in a study done in Zabol (Indian city) at 2014[19],it was revealed that there was a significant association between the educational level and the knowledge score about PIH .

Also there was no significant association between the economic status, occupation and residential area with knowledge score. This result is similar to study by Safvan (2014) in India that showed no significant association between the knowledge score of pregnant women and occupation, monthly income, gravida and gestational age.[22]

Regarding the past medical history of gestational Hypertension and Gestational Diabetes, they are associated significantly with the knowledge score, and the participants with positive past history had a higher score than those with a negative past history. This similar to the study done in India in 2013 [23].

The pregnant participants who practice sport had a higher knowledge score with significant association than pregnant women who do not practice sport.

The pregnant participants who had regular antenatal care visits during pregnancy had a higher knowledge than the pregnant women with no regular visits and significant association between them.

ANC can aid pregnant women to understand the alarming signs of preeclampsia during pregnancy and delivery and provides the pregnant women

with medications for PIH to prevent pre-eclampsia and eclampsia [24].

## Conclusions

- Large number 81.7% of the pregnant participants had heard about PIH and their source of information was relatives/friends rather than heath care providers and media.
- The larger percentage of the pregnant participants had poor knowledge about PIH.
- Knowledge score of the pregnant participants is significantly associated with the age, past medical history of PIH and gestational diabetes, type of family, practicing sport and regular antenatal care visits.

## Recommendations

- There is need for Improving the knowledge of pregnant women by health education programs which can be directed in the antenatal clinics and wards of the hospital throughout instruction booklet. regarding PIH.
- Public awareness programs through mass media can play very important role for increasing the knowledge.
- Encourage earlier booking visit in the first 12 weeks of pregnancy, increase the no. of visit if PIH develop, ANC visit program is as following NICE guideline: 1.2.5 frequency of antenatal appointments. schedule of antenatal appointments should be determined by the function of the appointments. For a woman who is nulliparous with an uncomplicated pregnancy, a schedule of 10 appointments should be adequate. For a woman who is parous with an uncomplicated pregnancy, a schedule of 7 appointments should be adequate.

Encourage paramedical staff to involve continuing educational program in shape of workshops, training programs, conferences for improving nursing care about PIH to get better mothers and neonate's health, also this can aid in increasing the pregnant woman awareness on the disease.

## Acknowledgement

First of all, I thank Allah for granting me the will and strength with which this research was accomplished.
I would like to express great thanks to my supervisor Dr. Shahrazad S. Aljobori for her great helpfulness.
I am so grateful for everyone who supported me to complete the study.

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