

## **Occurrence of Pregnancy Induced Hypertension and Outcome in Level II Hospitals of Ilocos Sur**

Rebecca N. Rios

Joussie B. Bermio

Leila Sylvia F. Bautista

**University of Northern Philippines**

### **ABSTRACT**

*The study focused on the occurrence and outcome of pregnancy-induced hypertension in level II hospitals of Ilocos Sur. It made use of the descriptive-correlational method of research. The researchers administered the questionnaire to the pregnant women diagnosed with pregnancy induced hypertension. Data were treated and interpreted through the use of frequency and percentage, mean, and simple linear correlation analysis. The respondents are 31-40 years old with a monthly income of Php 25, 000 and above, married, college graduates and skilled workers. Each of the respondents has delivered one live birth. Great majority eat salty foods, majority eat fatty foods, most drink one cup of coffee per day, great majority exercise once a day, a great majority do not smoke and most drink alcoholic beverages. Most of the respondents had their pre-natal check-up , great majority had Tetanus Toxoid immunizations, used oral contraceptive and delivered through Caesarian Section without complications. The occurrence of pregnancy-induced hypertension in level II Hospitals of Ilocos Sur in 2012 is 67. There is an inverse correlation between occupation and prenatal visit to pregnancy-induced hypertension, no significant relationship exists between the respondents' obstretical profile and the occurrence of pregnancy-induced hypertension and a significant relationship between kidney problems and the occurrence of pregnancy-induced hypertension. Further studies should be conducted using other variables related to pregnancy-induced hypertension.*

**Keywords:** pregnancy-induced hypertension, occurrence, outcome, obstretical history

### **INTRODUCTION**

Hypertension disorder in pregnancy is considered to be one of the leading causes of maternal and fetal morbidity and mortality. It is a vascular disease of unknown cause which occurs anytime after the 24<sup>th</sup> week of gestation up to 2 weeks postpartum. There are factors that are believed to predispose a woman to hypertensive disorder in pregnancy such as age, gravidity, socio-economic status,

multiple pregnancy and with underlying medical conditions like heart diseases, hypertension or diabetes. (Singh, 2011)

Pregnancy-Induced Hypertension (PIH) is a condition which affects many women in the world. In the Philippines, it remains the second leading cause of maternal mortality in the Philippines from 1991 to 2006, according to the data culled from the Department of Health (Henshaw, 2011)

Pregnancy induced hypertension is a condition which effects many women in the world. This is true even for those expecting mothers in the Philippines. Studies of preeclampsia report about five percent of nulliparous women develop preeclampsia and 40 to 50 percent of these women develop severe disease worldwide. In the Philippines, according to DOH, Maternal Mortality Rate (MMR) is 162 out of 10,000 live births (Family Planning Survey 2006). Maternal deaths account for 14% of deaths among women. For the past five years all of the causes of maternal deaths exhibited an upward trend. Preeclampsia showed an increasing trend of 6.89 percent; 20 percent; 40 percent; and 100 percent. Ten women die everyday in the Philippines from pregnancy and childbirth related causes but for every mother who dies, roughly 20 more suffer serious disease and disability (Singh, 2011).

The health workers particularly nurses and midwives play a great role in the assessment of women who are at risk of developing hypertension after delivery. It is also their responsibility to look for alternative interventions to address health conditions of women suffering from hypertensive disorders.

According to demographic studies, a pregnant woman is at risk for PIH if she: (1) is a primipara or first time to be pregnant; (2) has pre-existing medical conditions like diabetes, hypertension and kidney problems; (3) belongs to the lower socio-economic status; (4) has poor access to prenatal care; (5) has family members who had PIH; (6) nutritional deficiencies, particularly calcium and vitamin C and ; (7) has stressful working conditions without any form of exercise during early stages of pregnancy.(Ventura, 2011)

However, significant differences in pregnancy complications and outcomes were found in adolescents younger than 15 years. There was an increased risk of preterm delivery in teenage mothers younger than age 15. The percentage of low birth weight infants (less than 2,500 g) was also found to be significantly increased when compared with older adolescents and women older than age 20: 14 percent versus ten percent versus nine percent , respectively (Henshaw, 2011).

Younger pregnant adolescents are less likely to access prenatal care than older adolescents, and all adolescents are less likely to seek timely prenatal care than adults.

In 2001, only 48 percent of young adolescents (younger than age 15) began prenatal care in the first trimester, compared with 70 percent of girls aged 15–19. In this same year, 16.8 percent young adolescents had no prenatal care or entered the prenatal care system in the seventh to ninth month of their pregnancies, compared with seven percent of older adolescents. The reasons for this are complex, including denial of the possibility of pregnancy, lack of familiarity with the health care system, fear of informing parents, fear of the pregnancy itself, adolescents' lack of awareness of both normal menstrual cyclicity and their own dates of menses, and embarrassment. While the available data conflict on what form of prenatal care is best for the adolescent patient, there is a clear indication that early prenatal care optimizes the outcome of adolescent pregnancies (Ventura, 2011).

From these studies, it appears that the adolescent patient can expect a positive obstetrical outcome. No increase in adverse obstetrical or perinatal outcome has been demonstrated in the adolescent patient older than age 15 years. Some studies suggest that the young adolescent (younger than 15 years or within 3 years of menarche) is at an increased risk for LBW infants and preterm delivery. However, this may be related to multiparity and poor pre-pregnancy nutrition, rather than to age alone.

Adolescents who become pregnant are often from lower socioeconomic groups, have poor baseline nutrition, and not very knowledgeable about nutrition. In a study which compared pregnant women who participated in the Special Supplemental Nutrition Program of WIC with pregnant women who did not participate. The results showed that the longer a woman participated in WIC, the heavier her baby was likely to be at birth. In addition, those who entered prenatal care and received WIC support before 12 weeks of gestation were 25% less likely to deliver a small-for-gestation baby (Grunbaun, 2012).

While there are no definitive etiology or causes of PIH, scientists agree that one best way to remedy the situation of PIH-related deaths is for a meticulous prenatal check-up. It is true that PIH is very difficult to predict and it is a potentially deadly infirmity that has plagued the country as the second leading cause of deaths among Filipino pregnant mothers for more than a decade. Local studies however indicate that one way of addressing this maternal health issue is for the pregnant population to utilize the prenatal and reproductive health services rendered by the government through the DOH's Barangay health stations or rural health units scattered per city, district and provinces (Henshaw, 2011).

PIH may not be readily prevented but an early detection will prompt appropriate and clinically sound intervention to manage and bring the pregnancy to success from conception to delivery and postpartum. PIH is a fatal condition if treated

lightly. Complications of which include hemorrhage, kidney failure, premature birth and in worst cases, death of the pregnant woman and her unborn baby. Healthful practices must be observed as early as possible to prevent complications later in life. Unhealthy eating habits, smoking and excessive alcohol drinking may have lethal consequences later in life which may include a multitude of diseases other than PIH (Singh, 2011).

It is in these views that the researchers wanted to venture into studying the occurrence and outcome of pregnancy-induced hypertension among women in level II Hospitals of Ilocos Sur. The results of the study would serve as a baseline data to conduct further researches in this field. The study is in line with one of the Millennium Development Goals which is the reduction of maternal mortality rate. The results would also help health workers to plan strategies and health teachings to high risk women. This would also enable the nurses to formulate prompt, appropriate and clinically sound intervention to manage and bring the pregnancy to success from conception to delivery and postpartum period as well.

The study aimed to determine the occurrence and outcome of pregnancy-induced hypertension in level II Hospitals of Ilocos Sur. Specifically, it sought to determine the socio-demographic profile, obstetrical history, and health-related profile of patients confined in level II Hospitals of Ilocos Sur; the occurrence of pregnancy-induced hypertension among patients confined in level II Hospitals of Ilocos Sur during the Calendar Year 2012; the outcome of pregnancy-induced hypertension on the mother, fetus and the type of delivery; to determine whether the occurrence of pregnancy-induced hypertension is significantly related to the socio-demographic factors, obstetrical history, and health-related factors.

## **METHODOLOGY**

The study made use of the descriptive-correlational research design. The population of the study were the 67 patients diagnosed to have pregnancy-induced hypertension in Gabriela Silang General Hospital, St. James Hospital and Metro Vigan Cooperative Hospital from January-December 2012.

A questionnaire-checklist was the main tool in gathering the data needed for the study. Prior permission was obtained from the Chief of Hospitals covered by the study. Review of records of the patients diagnosed with pregnancy-induced hypertension from January-December, 2012 was done. The researchers personally administered the questionnaire to the respondents. The questionnaire was supplemented with an interview to elicit information on the socio-demographic and health-related profile of the respondents. Documentary analysis was also used to

obtain information on the obstetrical history and outcome of pregnancy-induced hypertension to the mother's fetus and type of delivery.

Frequency count and percentages were used to describe the socio-demographic profile, obstetrical history, and health-related profile of the respondents as well as the outcomes of pregnancy to the mother, fetus and the type of delivery. Simple linear correlation analysis was used to establish the relationship between the occurrence of pregnancy-induced hypertension and the socio-demographic profile, obstetrical history and the health-related profile of the respondents.

### **ETHICAL CONSIDERATIONS**

Ethical considerations have been complied with. Full consent was obtained from the participants prior to the study. Respect for the dignity of research participants was prioritized. Research participants were not subjected to harm.

Adequate level of confidentiality of the research data was ensured. Anonymity of individuals in the research was ensured and affiliations in any form, sources of funding, as well as any possible conflicts of interest have to be declared. Any type of communication in relation to the research was done with honesty and transparency.

### **RESULTS AND DISCUSSION**

#### **On Socio-Demographic Profile of the Respondents**

A great percentage (28 or 41.79%) of the respondents are 31-40 years old, majority (43 or 64.2%) are married, 38 (56.7%) are college graduates, 37 (55.2%) are skilled workers, and 30 (44.8%) have a family monthly income of PhP 25,000 and above.

#### **On Obstetrical History of the Respondents**

Majority (34 or 50.8%) of the respondents have been pregnant once. A great percentage of the respondents (26 or 38.8%) have one termed birth while a great majority (55 or 82.1%) have no abortion.

#### **Health-Related Profile of the Respondents**

##### On Diet

Great majority (51 or 76.1%) of the respondents eat salty foods, majority of them (9 or 56.2%) eat salty foods once a week. Majority (42 or 62.7%) eat fatty foods, while 31 (73.8%) of them eat fatty foods once a week. Great majority (52 or 77.6%) drink coffee, and most of them (46 or 88.5) drink coffee once a day, and a marked percentage (25 or 48 %) drink one cup of coffee.

#### On Physical Activity / Exercise

Great majority (54 or 80.6 %) of the respondents perform exercise as a form of physical activity. Most (47 or 87%) of those who exercise do it once a day and majority (36 or 66.7%) perform an exercise for 30 minutes in a session.

#### On Smoking and Drinking

Majority (54 or 80.6%) of the respondents do not smoke, a great percentage (6 or 46.2%) of those who smoke consume one to two sticks per day. Most (62 or 92.5%) of the respondents do not drink alcoholic beverages and out of the five who drink alcohol, majority (3 or 60%) drink one glass of alcohol per day.

#### On Frequency of Prenatal Visit

Most (60 or 89.65%) of the respondents had their prenatal check-up once during the first to the third month of pregnancy. Most (60 or 89.65%) of the respondents had their prenatal check-up once during the fourth to the sixth month. A great majority (54 or 80.6%) of the respondents attended to their prenatal check-up thrice during the seventh to the eighth month of their pregnancy and 53 (79.1%) had their prenatal check-up once a week during the ninth month.

#### On Immunization

A great majority (53 or 79.1%) of the respondents had their TT1 immunization, 57 (85.1%) had their TT2 and TT3 immunization, 55 (82.1 %) received their TT4 immunization, and 56 (83.6%) had their TT5 immunization.

#### Use of Oral Contraceptives

Out of the 67 respondents, majority (41 or 61.2%) used oral contraceptives. Out of the 41 respondents who used oral contraceptives, a great majority (34 or 82.9%) have been using oral contraceptives for six months.

#### On Consultation to Health Facilities/Agencies

Majority (38 or 56.7%) of the respondents had their consultation in the hospital. This may be due to the fact that they are suffering from one of the most dangerous complications of pregnancy which is the Pregnancy Induced Hypertension.

#### Presence of Co-Morbid Conditions

Majority (36 or 53.7%) of the respondents did not develop hypertension during pregnancy. Most (63 or 94%) of the respondents did not develop gestational diabetes during pregnancy. A great majority (55 or 82.1%) of the respondents did not experience urinary tract infection during their pregnancy. This implies that only a few of the respondents had co- morbid conditions during their pregnancy.

### Occurrence of Pregnancy-Induced Hypertension in Level II Hospitals of Ilocos Sur, CY 2012

Out of the 67 cases of pregnancy-induced hypertension in level II Hospitals of Ilocos Sur during the Calendar Year 2012, most (60 or 89.5%) are confined at the Ilocos Sur Provincial Hospital- Gabriela Silang, followed by St. James Hospital (5 or 3%) and the least (2 or 3%) in Metro Vigan Cooperative Hospital. The greatest number of cases at the Ilocos Sur Provincial Hospital-Gabriela Silang, may be due to its being a government owned hospital, therefore, it is more affordable on patients' part. The other two are private hospitals and obviously are more expensive.

### Outcome of Pregnancy-Induced Hypertension on the Mother, Fetus and Type of Delivery

Most (58 or 86.6%) of the respondents did not have any complications due to pregnancy-induced hypertension after delivery. There are 59 (88.1%) of the respondents who delivered their babies with no complications.

A great majority (55 or 82.1%) of respondents delivered through Caesarean Section, while 12 (17.9%) delivered through Normal Spontaneous Delivery

### Relationship Between the Occurrence of Pregnancy-Induced Hypertension and the Respondents' Socio-Demographic Profile

**Table 1**  
**Correlation Coefficients Between the Occurrence of Pregnancy-Induced Hypertension and the Socio-demographic Factors**

Socio-demographic Factors	r-value	r-prob	Decision
Age	-.145	.249	Do not Reject Ho
Civil Status	-.029	.820	Do not Reject Ho
Educational Attainment	.148	.240	Do not Reject Ho
Occupation	-.417**	.001	Reject Ho
Monthly Family Income	.020	.877	Do not Reject Ho

\*\* . Correlation is significant at the 0.01 level

Among the socio-demographic factors, occupation ( $r=-.417$ ) attained an inverse significant relationship to the occurrence of pregnancy-induced hypertension. This implies that the occurrence of pregnancy-induced hypertension is higher among the respondents who are skilled workers because of the stress and pressures brought about by the household chores including the care of their children.

## Relationship Between the Occurrence of Pregnancy-Induced Hypertension and the Respondents' Obstetric History

**Table 2**  
**Correlation Coefficients Between the Occurrence of Pregnancy-induced hypertension and the Obstetric History**

Obstetrical History	r-value	r-prob	Decision
Number of Pregnancy	.003	.983	Do not Reject Ho
Term Birth	.044	.730	Do not Reject Ho
Premature	-.086	.497	Do not Reject Ho
Abortion	-.082	.518	Do not Reject Ho
Live Birth	-.036	.776	Do not Reject Ho

Table 2 reveals that there is no significant relationship between the occurrence of pregnancy-induced hypertension and the respondents' obstetrical related profile. This means that whether the respondents have small or big number of children, have delivered termed, pre-termed and have suffered or experienced abortion do not affect the occurrence of pregnancy-induced hypertension. This is attributed to the fact that the cause of pregnancy induced hypertension has no definite cause (Sia, 2006).

## Relationship Between the Occurrence of Pregnancy-Induced Hypertension and the Respondents' Health-Related Profile

It is reflected on the table that among the health-related factors, prenatal visit ( $r=-.341$ ) revealed an inverse significant correlation to the occurrence of pregnancy-induced hypertension. This means that the less frequent the respondents attend to their prenatal visit, the higher is the possibility of having pregnancy-induced hypertension. Women who do not submit themselves for prenatal check-up are more likely to suffer from pregnancy induced hypertension because they are not being monitored closely by health care workers.

**Table 3**  
**Correlation Coefficients Between the Occurrence of Pregnancy-induced Hypertension and Health Related Profile of the Respondents**

Health-Related Factors	r-value	r-prob	Decision
Prenatal Visit	-.341**	.006	Reject Ho
Immunizations	.275	.026	Do not Reject Ho
Cardiovascular Diseases	-.131	.299	Do not Reject Ho
Diabetes Mellitus	.172	.170	Do not Reject Ho
Kidney Problem	.507**	.000	Reject Ho

\*\* . Correlation is significant at the 0.01 level

Kidney problem ( $r=.507$ ) was found out to have a significant relationship to the occurrence of pregnancy-induced hypertension. The finding is attributed to the fact



that the risk of PIH is higher in women with kidney disease. Kidney governs the level of blood pressure by regulating extracellular fluid volume. Balance is normally achieved by matching urinary excretion of salt and water with dietary intake, thereby maintaining a constant extracellular fluid volume and blood pressure. In this construct, when blood pressure increases from any cause, renal perfusion pressure increases with a consequent enhancement of sodium and water excretion. Based on the substantial capacity for the kidney to excrete sodium, this blood pressure-tempering mechanism should have sufficient gain to limit intravascular volume and thereby lower blood pressure in response to a range of stimuli from increased heart rate to elevated peripheral vascular resistance (Crowley and Coffman, 2014).

### **CONCLUSIONS**

Majority of the respondents do not adhere to healthy diet during pregnancy. Majority went for prenatal check-up, some did not follow the right frequency and some did not receive tetanus toxoid immunizations. They used oral contraceptives, did not develop hypertension, gestational diabetes and urinary tract infections during pregnancy and delivered through Caesarian Section without complications.

There is a significant inverse correlation between occupation and prenatal visit to the occurrence of pregnancy-induced hypertension. No significant relationship exists between the respondents' obstetrical history and the occurrence of pregnancy-induced hypertension. A significant relationship exists between kidney problems and the occurrence of pregnancy-induced hypertension.

### **RECOMMENDATIONS**

The following recommendations are hereby forwarded: Health workers should emphasize to their clients the importance of adhering to healthy diet, avoidance of caffeine intake during pregnancy, having regular prenatal check-up and the advantages derived from receiving complete dose of tetanus toxoid immunization; pregnant mothers found to be having kidney problems should seek further consultation to prevent pregnancy-induced hypertension to occur during the course of the pregnancy thereby preventing further complications that may occur to both mother and the baby; the Department of Health should come up with programs in order to reach out to mothers living in far areas to provide them knowledge regarding safe pregnancy and motherhood; further studies should be conducted using other variables related to pregnancy-induced hypertension.

## LITERATURE CITED

- Abma, J.C., Chandra, A., Mosher, W.D. et al. (2012). Fertility, family planning, and women's health: new data from the 1995 National Survey of Family Growth. Vital Health Stat
- Crowley, Steven D., Coffman, Thomas. 2014. The inextricable role of the kidney in hypertension. Retrieved on September 3, 2014 from [www.ncbi.nlm.nih.gov/pmc/articles/PMC4092877/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4092877/).
- Grunbaun J.A., Kann L, Kinchen SA et al. (2012s). Youth risk behaviour surveillance– United States, 2001. MMWR Surveill Summ 51:1-62
- Henshaw S. (2011). U.S. teenage pregnancy statistics: with comparative statistics for women aged 20–24. The Alan Guttmacher Institute.
- Maritin J.A, Park MM, Sutton P: Births. (2012). Preliminary Data for 2001. National Vital Stat Rep 50 :( 10)
- Sia, Maria Loreto J.,  
Outline in Obstetrics A Textbook and Reviewer for Nurses and Midwives, 433
- Singh S, Darroch J: Adolescent Pregnancy and Childbearing: levels and trends in developed Countries. Fam Plan Perspect. 32:14-23, 2011
- Ventura, SJ, (2011). Births, Preliminary data for 2011, National vital Statistics reports; Hyattsville, MD: National Center for Health Statistics; vol. 56 no. 7

