

THE PREVALENCE AND OUTCOME OF HYPERTENSIVE DISORDERS IN PREGNANCY AMONG WOMEN THAT DELIVERED IN NNAMDI AZIKIWE UNIVERSITY TEACHING HOSPITAL, ANAMBRA STATE: A 5 YEARS REVIEW.

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Author's contributions

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ABSTRACT

Hypertensive disorders in pregnancy are major contributors to preventable maternal and foetal morbidity and mortality. This study aimed to determine the prevalence, associated risk factors, and maternal and foetal outcomes of hypertensive disorders in pregnancy among women managed at Nnamdi Azikiwe University Teaching Hospital, Nnewi. A retrospective study was conducted, involving a five-year review of cases managed at the facility. Out of 4,089 deliveries during the study period, 30 cases of hypertensive disorders in pregnancy were recorded, giving a prevalence of 0.73%. Only 22 case folders were available and reviewed. The mean maternal age was 32.54 years. Most of the women (54.5%) had secondary school education as their highest qualification, and the same proportion booked for antenatal care. The majority were multiparous. Pregnancy-induced hypertension was the most common type, accounting for 77.3% of cases, and caesarean section was the predominant mode of delivery (68.2%). Although no maternal deaths were recorded, 13.6% of the women experienced complications. Regarding neonatal outcomes, 59.1% of the babies had normal birth weight, while 18.2% had low or very low birth weight. Most of the babies (86.4%) were alive and well at birth, while 9.1% died and 4.5% were severely asphyxiated. The study suggests that the prevalence of hypertensive disorders in pregnancy is declining, with better maternal and

foetal outcomes, possibly due to improved antenatal care enrolment. It recommends enhanced female education and empowerment, alongside the provision of high-quality and free antenatal care for all pregnant women.

Keywords: Hypertensive disorders, pregnancy, Prevalence, Maternal outcome, Foetal outcome, Pregnancy-induced hypertension, Antenatal care, Nigeria.

1.0 INTRODUCTION

Hypertension is defined as a persistent elevation of blood pressure, with systolic pressure equal to or above 140 mmHg and/or diastolic pressure equal to or above 90 mmHg. It is more prevalent among certain ethnic groups, such as African-Americans and Japanese, and is influenced by both genetic and environmental factors. While 40–60% of cases may be attributed to genetic predisposition, contributing environmental factors include high salt intake, excessive alcohol consumption, obesity, physical inactivity, and impaired intrauterine growth. However, in approximately 95% of cases, the cause is unknown, and such cases are classified as primary or essential hypertension (Walker *et al.*, 2014).

In pregnancy, a woman is considered hypertensive if she has a systolic blood pressure ≥ 140 mmHg and/or a diastolic pressure ≥ 90 mmHg on at least two occasions, measured four hours apart (New York State Department of Health, 2013). Hypertensive disorders in pregnancy (HDP) encompass a group of conditions associated with elevated blood pressure during pregnancy, including pregnancy-induced hypertension, pre-eclampsia, eclampsia, and chronic hypertension in pregnancy. These disorders are major contributors to foeto-maternal morbidity and mortality, particularly in low- and middle-income countries (Aabidha *et al.* 2015; Singh *et al.*, 2014). Pregnancy-induced hypertension refers to new-onset hypertension in the second half of pregnancy without accompanying proteinuria.

Pre-eclampsia is diagnosed when hypertension occurs after 20 weeks of gestation in a previously normotensive woman, accompanied by ≥ 300 mg of protein in a 24-hour urine sample. Eclampsia is characterized by the occurrence of seizures in a woman with pre-eclampsia, in the absence of underlying neurological disease. Chronic hypertension in pregnancy refers to hypertension diagnosed before pregnancy or before 20 weeks of gestation (Bartal & Sibai, 2022). The incidence and prevalence of HDP vary globally and are influenced by numerous risk factors such as chronic hypertension, maternal age, race, multifetal gestation, smoking, autoimmune diseases, and pre-existing diabetes.

Early diagnosis and effective management are critical for reducing the morbidity and mortality associated with these conditions. Studies have shown that women with gestational hypertension, especially pre-eclampsia, are at increased risk for chronic hypertension, renal disease, and long-term cardiovascular complications. Pre-eclampsia is also associated with adverse neonatal outcomes such as birth asphyxia, hyperbilirubinemia, polycythaemia, and sepsis (Hafiz *et al.*, 2014). While the incidence of eclampsia is low in developed countries—for example, approximately 1 in 2,000 deliveries in the United Kingdom—it remains significantly higher in developing countries. In Nigeria, studies conducted in south-south Nigerian health facilities in 2014 reported prevalence as high as 20.8% for hypertensive disorders in pregnancy (Obada *et al.*, 2021). These disparities highlight the need for increased awareness, education, and preventive strategies tailored to the local context (Kokori *et al.*, 2024; Gemechu & Mengistie, 2020; World Health Organization, 2018). This study was undertaken to assess the prevalence, risk factors, and outcomes of hypertensive disorders in pregnancy among women managed at Nnamdi Azikiwe University Teaching Hospital, Nnewi. The findings aim to contribute valuable data for guiding interventions and policies targeted at reducing maternal and perinatal complications associated with hypertensive disorders in pregnancy.

2.0 METHODOLOGY

Study Area

This study was conducted at Nnamdi Azikiwe University Teaching Hospital (NAUTH), located in Nnewi, Anambra State, Nigeria. NAUTH is a tertiary healthcare facility offering both in-patient and out-patient

services in various specialties including medicine, surgery, paediatrics, obstetrics and gynecology, intensive care, accident and emergency care, pharmaceutical services, and laboratory diagnostics. It serves as a referral center for numerous surrounding health facilities. The host town, Nnewi, is a semi-urban area in southeastern Nigeria, known for its significant commercial and industrial activities, particularly in the automobile spare parts sector.

Study Design

This was a retrospective descriptive study involving a five-year review of medical records of women diagnosed with hypertensive disorders in pregnancy and managed at NAUTH. The review covered deliveries between 1st January 2014 and 31st December 2018.

Study Population

The study population consisted of pregnant women of reproductive age (15–45 years) who were admitted to the labor ward of NAUTH within the five-year study period.

Sample Size Determination

All available medical folders of women who delivered at NAUTH between 1st January 2014 and 31st December 2018 and were diagnosed with any form of hypertensive disorder in pregnancy were retrieved and reviewed.

Ethical Consideration

Ethical approval for this study was obtained from the NAUTH Ethics Committee. Additionally, written permission was granted by the Head of the Medical Records Department. All patient information was handled confidentially, and no names or personal identifiers were included in the data extraction or reporting process.

3.0 RESULTS

A total of 4,089 deliveries occurred during the five-year study period. Among these, 30 cases of hypertensive disorders in pregnancy (HDP) were identified, yielding a prevalence rate of 0.73%. However, only 22 patient folders were available and analyzed. The mean maternal age was 32.54 years. The majority of the women (54.5%) had a Senior School Certificate Examination (SSCE) as their highest level of education. Over half (54.5%) were booked for antenatal care, while 45.5% were unbooked. In terms of parity, 45.5% were multiparous, 36.4% grand multiparous, and 18.2% nulliparous.

Pregnancy-Induced Hypertension (PIH) was the most frequently observed type of HDP, accounting for 77.3% of the cases, followed by severe preeclampsia (18.2%) and eclampsia (4.5%). Regarding the mode of delivery, 68.2% of the women underwent caesarean section, 18.2% had spontaneous vaginal delivery, and 13.6% had induced labour.

Maternal outcomes were generally favorable. None of the women died during the study period, though 13.6% developed complications, including postpartum haemorrhage, placental abruption, or disseminated intravascular coagulation. Fetal outcomes revealed that 59.1% of the neonates had normal birth weights (2.5–4.0 kg), while 18.2% each had low birth weight (<2.5 kg) and very low birth weight (<1.5 kg). The majority of neonates (86.4%) were live births with good outcomes. However, 9.1% were stillbirths, and 4.5% were severely asphyxiated.

Table 1. Number of delivery/ Parity

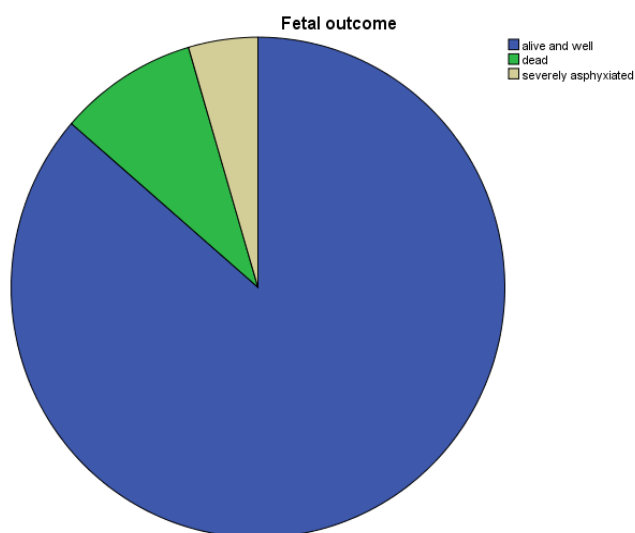
Parity	Frequency	Percent	Cumulative Percent
Nullipara(o)	4	18.2	18.2
Multipara(1-3)	10	45.5	63.6
Grandmultipara(4 and above)	8	36.4	100.0
Total	22	100.0	

Table 2. Types of hypertensive disorder

Hypertensive type	Frequency	Percent	Valid Percent	Cumulative Percent
PIH	17	77.3	77.3	77.3
Severe preeclampsia	4	18.2	18.2	95.5
Eclampsia	1	4.5	4.5	100.0
Total	22	100.0	100.0	

Table 3. Maternal outcome

Outcome	Frequency	Percent	Cumulative Percent
alive and well	19	86.4	86.4
complications	3	13.6	100.0
Total	22	100.0	

**Figure 1:** Pie Chart illustrating the fetal outcomes

The figure shows that 86.4% of the babies were alive and well, 9.1% died and 4.5% of them were severely asphyxiated.

4.0 DISCUSSION

This study found a relatively low prevalence (0.73%) of hypertensive disorders in pregnancy compared to other studies conducted in, Ethiopia (6.2%) (Abadi *et al.*, 2018), and Northern Nigeria (19.4%) (ayogu *et al.*, 2020). However, the figure aligns more closely with those from studies conducted in South-eastern Nigeria, such as in Ebonyi (0.99%) (Ajah *et al.*, 2016), Abia (0.8%) (Onyerugha & Ugboma, 2012), and Anambra (0.91%) (Adinma, 2012). This decline in prevalence may be attributed to improved antenatal care attendance, as more than half of the women in this study were booked.

Among the types of HDP, pregnancy-induced hypertension was the most common (77.3%), followed by severe pre-eclampsia (18.2%) and eclampsia (4.5%), corroborating findings from similar local and international studies. Remarkably, no maternal deaths were recorded in this study, which contrasts with mortality rates reported in previous studies (ranging from 1.6% to 17.5%) (Katsuragi *et al.*, 2019; Connor, O'Donnell & Kearney, 2013; Adamu *et al.*, 2012). However, 13.6% of the women experienced complications

such as postpartum haemorrhage, placental abruption, and DIC, which are consistent with known sequelae of hypertensive disorders in pregnancy (Battarbee *et al.*, 2020; Gezehagn & Yifru, 2015 ;).

The rate of caesarean section (68.2%) was significantly higher than figures reported in India (32.5%) and Ghana (17.4%) (Gemechu & Mengistie, 2020; Gezehagn & Yifru, 2015), but comparable to findings from Abakaliki (51.6%) and Nnewi (71.7%) (Ajah *et al.*, 2016; Adinma, 2012).

Fetal outcomes were relatively favourable, with 86.4% of neonates born alive. The proportion of low and very low birthweight babies (each at 18.2%) was lower than rates documented in other Nigerian studies. Neonatal mortality (9.1%) was also lower than many other reports but still represents a cause for concern. Notably, 54.5% of the women had only SSCE as their highest academic qualification, suggesting that lower educational attainment—often associated with poorer socioeconomic status—may be a contributory risk factor. Interestingly, booking status and parity did not follow the expected trend of unbooked and nulliparous women being at greater risk, as most women were multiparous and booked for antenatal care (Ajah *et al.*, 2016)

5.0 CONCLUSION

This study demonstrated a low prevalence (0.73%) of hypertensive disorders in pregnancy among women who delivered at Nnamdi Azikiwe University Teaching Hospital over the five-year period. The maternal and fetal outcomes observed were relatively favourable, with no recorded maternal deaths and a high proportion of live births. The improved outcomes may be attributed to increased antenatal care attendance, suggesting the positive impact of early detection and appropriate management of hypertensive disorders during pregnancy. Despite a majority of the women having only secondary-level education, their antenatal booking and care appeared to significantly influence the positive outcomes observed.

Recommendations

It is recommended that greater efforts should be directed towards improving female education, particularly beyond secondary school level, to increase awareness and understanding of health risks during pregnancy. High-quality antenatal care should be prioritised, sustained and made freely accessible to all pregnant women, irrespective of their socioeconomic background, to ensure early identification and management of hypertensive disorders. Public health campaigns should be intensified to educate women on the importance of antenatal care and the risk factors associated with hypertensive disorders in pregnancy.

Limitation

The limitations of this study included incomplete or inaccurate documentation in medical records and the unavailability of some records, which may have affected the completeness and accuracy of the data.

Future Direction:

There is need to expand on this research using more elaborate study designs like longitudinal designs, and qualitative follow-up studies. Community based studies will give a wider and more representative view of this study.

Conflict of interest: There is no conflict of interest among the authors

REFERENCES

- Aabidha, P. M., Cherian, A. G., Paul, E., & Helan, J. (2015). Maternal and fetal outcome in pre-eclampsia in a secondary care hospital in South India. *Journal of family medicine and primary care*, 4(2), 257-260.
- Abadi, K. B., Getachew, M. K., Gedefaw, A. F., & Achenef, A. M. (2018). Prevalence of hypertensive disorders in pregnancy in Ethiopia: A systematic review and meta-analysis. *BMC Pregnancy and Childbirth*, 18, 34. <https://doi.org/10.1186/s12884-018-1667-7>

- Adamu, R. A., Ibrahim, M. T., Umar, N. I., & Mohammed, S. B. (2012). Pregnancy outcome in women with eclampsia at a tertiary centre in northern Nigeria. *African Journal of Medical Sciences*, 51(2), 211–219.
- Adinma, E. D. (2012). Pattern of clinical presentation of eclampsia at Nnamdi Azikiwe University Teaching Hospital, Nnewi, South-East Nigeria. *Nigerian Journal of Medicine*, 21(3), 313–316.
- Ajah, L. O., Ezeonu, P. O., Ozonu, N. C., Lawani, L. O., & Obuna, J. A. (2016). The foeto-maternal outcome of preeclampsia with severe features and eclampsia in Abakaliki, South-East Nigeria. *Journal of Clinical and Diagnostic Research*, 10(9), QC18–QC21. <https://doi.org/10.7860/JCDR/2016/20274.8475>
- Ayogu, M. E., Akaba, G. O., Offiong, R. A., Adewole, N. D., & Ekele, B. A. (2020). Risk factors for hypertensive disorders of pregnancy in Abuja, Nigeria: A prospective case-control study. *Tropical Journal of Obstetrics and Gynaecology*, 37(1), 46-52.
- Bartal, M. F., & Sibai, B. M. (2022). Eclampsia in the 21st century. *American journal of obstetrics and gynecology*, 226(2), S1237-S1253.
- Battarbee, A. N., Sinkey, R. G., Harper, L. M., Oparil, S., & Tita, A. T. (2020). Chronic hypertension in pregnancy. *American journal of obstetrics and gynecology*, 222(6), 532-541.
- Gemechu, K. S., Assefa, N., & Mengistie, B. (2020). Prevalence of hypertensive disorders of pregnancy and pregnancy outcomes in Sub-Saharan Africa: A systematic review and meta-analysis. *Women's Health*, 16, 1745506520973105.
- Gezehagn, E., & Yifru, B. (2015). Perinatal outcome in women with hypertensive disorders of pregnancy: A retrospective cohort study. *International Scholarly Research Notices*, 2015, Article 208043. <https://doi.org/10.1155/2015/208043>
- Hafiz, M. A., *et al.* (2014). Risk factors of birth asphyxia. *Italian Journal of Paediatrics*, 40, 94. <https://doi.org/10.1186/s13052-014-0094-2>
- Katsuragi, S., Tanaka, H., Hasegawa, J., Nakamura, M., Kanayama, N., Nakata, M., & Maternal Death Exploratory Committee in Japan and Japan Association of Obstetricians and Gynecologists. (2019). Analysis of preventability of hypertensive disorder in pregnancy-related maternal death using the nationwide registration system of maternal deaths in Japan. *The Journal of Maternal-Fetal & Neonatal Medicine*, 32(20), 3420-3426.
- Kokori, E., Aderinto, N., Olatunji, G., Komolafe, R., Babalola, E. A., Isarinade, D. T., & Omoworare, O. T. (2024). Prevalence and materno-fetal outcomes of preeclampsia/eclampsia among pregnant women in Nigeria: a systematic review and meta-analysis. *European Journal of Medical Research*, 29(1), 482.
- New York State Department of Health. (2013, May). Hypertensive disorders in pregnancy: Guideline summary. <https://www.health.ny.gov>
- Obada, A. A., Abba, A. A., & Msughter, A. E. (2021). Pregnancy Induced Hypertension in Kabo Local Government Area of Kano State, Nigeria. *Biomedical Journal of Scientific & Technical Research*, 39(4), 31458-31466.

Onyerugha, C. N., & Ugboma, H. A. (2012). Foetal outcomes of antepartum and intrapartum eclampsia in Aba, South-Eastern Nigeria. *Tropical Doctor*, 42(3), 129–132. <https://doi.org/10.1258/td.2012.110434>

Singh, S., Ahmed, E. B., Egondur, S. C., & Ikechukwu, N. E. (2014). Hypertensive disorders in pregnancy among pregnant women in a Nigerian teaching hospital. *Nigerian Medical Journal*, 55(5), 384–385. <https://doi.org/10.4103/0300-1652.140382>

Walker, B. R., Colledge, R. N., Ralston, S. H., & Penman, I. D. (2014). Cardiovascular diseases: Hypertension. In Davidson's principles and practice of medicine (22nd ed., p. 608). Elsevier.

World Health Organization. (2018). WHO recommendations: Prevention and treatment of pre-eclampsia and eclampsia. World Health Organization. <https://www.who.int/publications/i/item/9789241550451>