PREECLAMPSIA AND MATERNAL HEALTH IN BENIN METROPOLIS

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Abstract
The study examined pre-eclampsia and maternal health in Benin metropolis.With three research questions and a descriptive survey design, data were collected from 200 respondents who were purposively selected via questionnaire. The findings confirmed that pre-eclampsia, marked by high blood pressure and proteinuria after 20 weeks of pregnancy, posed significant risks, leading to complications like preterm birth and maternal organ damage. The global prevalence of pre-eclampsia, especially in low- and middle-income countries, emphasizes the need for increased awareness, robust screening, and better access to quality maternal care. Recommendations included the need for implementation of prenatal screening protocols to detect early risk factors and strengthening healthcare systems, particularly in under-served areas, to ensure universal access to maternal healthcare.

Introduction
Preeclampsia is the leading causes of maternal and perinatal morbidity and mortality worldwide and it is a hypertensive disorder which usually occurs after 20 weeks of gestation. It is a rapidly progressive condition characterized by elevated blood pressure and protein in the urine. It is a cause of severe morbidity, long term disability and death among both mothers and their babies. . It is now well accepted that the proteinuria and hypertension of preeclampsia occur as a result of extensive endothelial dysfunction. The risk of maternal death is much more common in settings in which prenatal and intra partum care is not routinely available to pregnant women (Eze, Barasa and Adams, 2018). Hypertensive disorders of pregnancy are among the most common medical problems in pregnancy with an incidence of between 5-10%. The incidence varies amongst different hospitals, regions and countries. Hypertensive disorders in pregnancy are a major cause of maternal and perinatal morbidity and mortality worldwide (Easterling and Catalano, 2020).Every day in 2017, about 880 women died due to complications of pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented. Pregnancy induced hypertensions like preeclampsia is one of the primary causes of death. Of the 880 daily maternal deaths, 550 occurred in Sub-Saharan Africa and 180 in Southern Asia, compared to 5 in developed countries (Rolnik *et al.,* 2020). The risk of a woman in a developing country dying from a maternal-related causes during her lifetime is about 33 times higher compared to a woman living in a developed country. The prevalence of preeclampsia in developing countries ranges from 1.8 to 16.7%. For instance, the prevalence of preeclampsia occurs in 10% of pregnancies in African women, which is significantly higher than the global average of approximately 2% (Thorp and Rolnik, 2020).

In Nigeria, the estimate of the maternal mortality ratio for the 7-year period preceding the 2018 Nigerian health survey is 412 deaths per 100,000 live births; that is, for every 1000 births in Nigeria, there are about 4 maternal deaths. A 5 year retrospective review in Ambo Hospital found that 12.3% maternal mortality occurred due to hypertension disorder of pregnancy. Moreover, according to World Health Organization (2020), 16% of direct maternal mortality and 10% of all maternal mortality (direct and indirect) was due to preeclampsia/eclampsia. Despite this condition has adverse effects on the maternal and child health, its prevalence is still significant especially in developing and third world countries, of which Nigeria belongs. In general, preeclampsia remains a major problem both in maternal and infants morbidity and mortality. But the risk factors for preeclampsia have not been well documented in Nigeria. Hence, this study can assess the Silent Killer

Methodology

Survey research design was used in this research. According to Lopez-Jaramillo (2017) survey research design is directed towards people, their opinions and behaviours. Survey research design is therefore suitable for this since information was collected from respondent on mental health awareness: a global health perspective. The population for the study consist of women attending clinical sessions (antenatal) in Benin metropolis. Benin metropolis comprises four local government areas (Ovia North East local, Oredo, Egor and Ikpoba Okha) of Edo State. There are total of 1,646 women visiting the various health care centre annually in Benin Metropolis (State Ministry of Information, 2023).

The sampling size of 200 respondents was used as the sample for the research work by adopting purposive and simple random sampling techniques. The simple random sampling technique was used to select 5 health care centres in each of the four local government areas (Ovia North East local, Oredo, Egor and Ikpoba Okha) in Benin metropolis, making a total of 20 health care centres. Next, the purposive sampling technique was used to select 10 respondents from each of the 20 health care centres that are needed to for the study. Respondents who are expectant mothers and nursing mothers who visit the various health care centres for both antenatal and post-natal sessions. Hence, 200 respondents were used as the sample for the study.

The instrument used for data collection was a structured questionnaire. The instrument was designed along with the Likert scale. The instrument was divided into two sections A and B. Section A consist of respondents' demographic data while section B contains items designed to elicit answers to the research questions. Each item in section B has a four point Likert response options of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with 4, 3, 2, and 1 weight respectively.

To determine the reliability of the instrument, Test and re-test method was adopted. To this end 10 copies of the questionnaire were administered to respondents that are not part of the sample of the study. After two weeks, another set of 10 questionnaire were also sent to respondents that are not part of the sample of the study which were tested using the Pearson Moment Correlation analysis. A reliability value of 0.79 was obtained which showed that the instrument is reliable. The returned questionnaire was coded, inputted into the computer and analysed using the SPSS software. Mean and standard deviation was

employed to analyse the data meant to answer the research question. While the mean was used to determine the degree of the responses, the standard deviation was used to determine the extent at which the respondents' responses cluster around the mean. The mean rating of 2.50 was used for decision point such that items less than 2.50 was regarded as low extent while mean ratings which equals to or above 2.50 was regarded as high extent.

Results

Table 1: Influence of preeclampsia on maternal pregnancy

S/N	ITEM	N	Mean	S.Dev	Remark	Ranking
1	Preeclampsia increases the risk of cesarean delivery due to its impact on maternal and foetal health	200	2.94	.871	Accepted	4th
2	Preeclampsia has the potential to cause life-threatening conditions such as eclampsia and HELLP syndrome if left untreated.	200	3.36	1.03	Accepted	1st
3	Preeclampsia can lead to organ damage in the mother, particularly affecting the kidneys and live	200	3.16	.998	Accepted	2nd
4	Preeclampsia significantly increases the risk of complications during pregnancy.	200	2.89	.779	Accepted	6th
5	Preeclampsia can lead to high blood pressure and protein in the urine, posing serious threats to both mother and baby.	200	2.93	.819	Accepted	5th
6	Preeclampsia may result in restricted foetal growth and preterm delivery.	200	3.06	.951	Accepted	3rd

Table 1 on the Influence of preeclampsia on maternal pregnancy, revealed that the ranking of the various item statement. Occupying the 1st ranking position with mean score of 3.36, shows that pre-eclampsia has the potential to cause life-threatening conditions such as eclampsia and HELLP syndrome if left untreated.

Occupying the 2nd position with mean score of 3.16, shows that preeclampsia can lead to organ damage in the mother, particularly affecting the kidneys and live. Ranked 3rd with a mean of 3.06 shows that preeclampsia may result in restricted foetal growth and preterm delivery. Preeclampsia increases the risk of caesarean delivery due to its impact on maternal and foetal health was ranked 4th with a mean of 2.94.

The 5st ranking position with mean score of 2.93, shows that preeclampsia can lead to high blood pressure and protein in the urine, posing serious threats to both mother and baby. Rand in the 6th position with a mean of 2.89 shows that preeclampsia significantly increases the risk of complications during pregnancy.

Table 2: Prevalence of preeclampsia among women attending clinical sessions

S/N	ITEM	N	Mean	S.Dev	Remark	Ranking
7	The prevalence of preeclampsia is higher than anticipated among women attending clinical sessions.	200	2.46	.729	Not accepted	6th
8	Preeclampsia is more prevalent with older women than in younger women	200	2.92	.778	Accepted	4th
9	The issue of pre-eclampsia is quite rare to find in Benin metropolis	200	2.99	.842	Accepted	3rd
10	Preeclampsia has higher occurrence with women having their second pregnancy	200	2.87	.919	Accepted	5th
11	Pregnant women in their third trimester are more likely to be diagnosed of preeclampsia	200	3.10	.985	Accepted	2nd
12	Those with cases of preeclampsia I have seen have family history in the past	200	3.25	1.01	Accepted	1st

Table 2 on the prevalence of preeclampsia among women attending clinical sessions, revealed that the ranking of the various item statement. In the 1st ranking position with a mean score of 3.25, shows that those with cases of preeclampsia have family history in the past. In the 2nd position with mean score of 3.10, shows that pregnant women in their third trimester are more likely to be diagnosed of pre-eclampsia. Ranked 3rd with a mean of 2.99 shows that the issue of preeclampsia is quite rare to find in Benin metropolis. Response that pre-eclampsia is more prevalent with older women than in younger women was ranked 4th with a mean of 2.92.

The 5st ranking position with mean score of 2.87, shows that preeclampsia has higher occurrence with women having their second pregnancy. Rand in the 6th position with a mean of 2.46 shows that the prevalence of pre-eclampsia is higher than anticipated among women attending clinical sessions.

Table 3: Factors resulting to preeclampsia among women attending clinical sessions

S/N	ITEM	N	Mean	S.Dev	Remark	Ranking
13	Genetic predisposition plays a significant role in the development of pre-eclampsia among women attending clinical sessions	200	3.03	.956	Accepted	3rd
14	Underlying medical conditions such as diabetes and kidney disease increase the likelihood of pre-eclampsia among women attending clinical sessions	200	3.09	.921	Accepted	2nd
15	High blood pressure prior to pregnancy increases the risk of developing pre-eclampsia among women attending clinical sessions.	200	3.15	.803	Accepted	1st
16	Stress and psychological factors can exacerbate the risk of pre-eclampsia among women attending clinical sessions	200	2.98	0.76	Accepted	5th
17	Obesity is a significant risk factor for the development of preeclampsia among women attending clinical sessions	200	2.79	0.89	Accepted	6th
18	Poor diet and nutrition are contributing factors to the occurrence of preeclampsia in women attending clinical sessions.	200	3.01	.950	Accepted	4th

Table 3 is on the factors resulting to preeclampsia among women attending clinical sessions, showed that the ranking of the various item statement. In the 1st ranking position with mean score of 3.15, showing that high blood pressure prior to pregnancy increases the risk of developing preeclampsia among women attending clinical sessions.

In the 2nd position with mean score of 3.09, shows that underlying medical conditions such as diabetes and kidney disease increase the likelihood of preeclampsia among women attending clinical sessions. Ranked 3rd with a mean of 3.03 shows that genetic predisposition plays a significant role in the development of pre-eclampsia among women attending clinical sessions. Response that poor diet and nutrition are contributing factors to the occurrence of pre-eclampsia in women attending clinical sessions was ranked 4th with a mean of 3.01. The 5th ranking position with mean score of 2.98, shows that stress and psychological factors can exacerbate the risk of preeclampsia among women attending clinical sessions. Rand in the 6th position with a mean of 2.79 shows that obesity is a

significant risk factor for the development of pre-eclampsia among women attending clinical sessions.

Discussion of findings

The study on pre-eclampsia and maternal health in Benin Metropolis was carried out to examine the influence of pre-eclampsia on pregnancy, in Benin metropolis as a case study. The study showed that pre-eclampsia has significant influence on pregnancy in Benin metropolis. This is in line with Ogunyemi and Benae (2016) who stated that the effect of preeclampsia on pregnant women is a pressing concern, with significant implications for maternal and foetal health. Pre-eclampsia, characterized by high blood pressure and often accompanied by protein in the urine after 20 weeks of pregnancy, poses substantial risks to both mothers and their unborn babies. In Benin Metropolis, where access to comprehensive prenatal care may vary, the impact of pre-eclampsia can be particularly pronounced.

In examining the prevalence of preeclampsia among women attending clinical sessions in Benin metropolis, it was discovered that pregnant women in their third trimester are more likely to be diagnosed of pre-eclampsia and it has higher occurrence with women who have been pregnant before and those with family history. This is in line with WHO (2015) stating the alarming frequency of pre-eclampsia cases, particularly in low- and middle-income countries where access to quality maternal healthcare may be limited. The report underscores the urgent need for improved prenatal care and screening programs to detect and manage pre-eclampsia early, thereby reducing the risk of complications for both mothers and infants. Also, Eze, Barasa and Adams (2018) emphasized the importance of community education while Iyanda and Akinwusi emphasised reproductive health education inform of awareness campaigns to empower women and healthcare providers with the knowledge and resources necessary to prevent, recognize, and effectively manage pre-eclampsia, ultimately contributing to improved maternal and neonatal health outcomes worldwide.

Lastly, in assessing the factors resulting to preeclampsia among women, it was discovered that a host of factors can result to the issue of pre-eclampsia among pregnant women such as Genetic predisposition, underlying medical conditions such as diabetes and kidney disease increase the likelihood of pre-eclampsia, high blood pressure prior to pregnancy, stress and psychological factors, obesity and poor diet and nutrition are contributing factors to the occurrence of pre-eclampsia in women especially in low income countries of the world of which Nigeria fall in. This is in line with World Health Organization (WHO, 2020) report that stated that preeclampsia's etiology is thought to involve a combination of genetic, environmental, and maternal health factors. The report identified several key contributors, including genetic predisposition, obesity, hypertension prior to pregnancy, and underlying medical conditions such as diabetes and kidney disease. Also, Kayode and Olusimbo (2016) stressed that inadequate prenatal care and nutritional deficiencies are highlighted as significant risk factors, particularly in resource-constrained settings. Stress and psychological factors also emerge as potential triggers, underscoring the importance of holistic approaches to maternal healthcare. By elucidating these factors,

the WHO report provided valuable insights for healthcare providers and policymakers to develop targeted interventions aimed at preventing and managing pre-eclampsia, ultimately improving maternal and neonatal health outcomes on a global scale.

Conclusion

Based on the study carried out, it can be concluded that preeclampsia has significant influence on pregnancy in Benin metropolis as it presents a grave danger to pregnant women. Pregnant women in their third trimester are likely to be diagnosed of pre-eclampsia and it has higher occurrence with women who have been pregnant before and those with family history. A host of factors result to preclampsia among pregnant women like genetic predisposition, underlying medical conditions such as diabetes and kidney disease increase the likelihood of preclampsia, high blood pressure prior to pregnancy, stress and psychological factors, obesity and poor diet and nutrition are contributing factors to the occurrence of pre-eclampsia in women especially in low income countries of the world of which Nigeria fall in. Hence, there is the urgent need for heightened awareness, robust screening protocols, and improved access to quality maternal healthcare. Strengthening healthcare systems to ensure equitable access to prenatal care, diagnostic tools, and lifesaving interventions is paramount to reduce the occurrence of pre-eclampsia.The following recommendations were made:

1. *Enhance prenatal screening and monitoring:* Health care centres Implementation of a comprehensive prenatal screening protocols to detect pre-eclampsia risk factors early in pregnancy is necessary. This may include regular blood pressure monitoring, urine protein testing, and assessing maternal medical history. Additionally, integrate innovative diagnostic tools such as biomarker tests or imaging techniques to improve accuracy and early detection.
2. *Improve access to maternal healthcare:* Government should strengthen healthcare systems, particularly in under-served regions, to ensure universal access to quality maternal healthcare services. This includes establishing prenatal care clinics in remote areas, training healthcare professionals in preclampsia management, and providing essential medications and equipment for timely interventions.
3. *Invest in research and innovation:* Government and other funding agencies should allocate resources for research initiatives aimed at understanding the underlying mechanisms of pre-eclampsia and developing novel preventive and therapeutic interventions. Foster collaborations between multidisciplinary teams of researchers, clinicians, and policymakers to accelerate progress in this field. Embrace technological advancements such as telemedicine and mobile health applications to facilitate remote monitoring and follow-up care for pregnant women at risk of preeclampsia, especially in regions with limited healthcare infrastructure.

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