



Knowledge of Eclampsia among Pregnant Women Attending a Tertiary Antenatal Clinic in Ikenne LGA, Ogun State, Nigeria

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Authors' contributions

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ABSTRACT

Background: Eclampsia is a hypertensive disorder of pregnancy; it is major global health problem and a common medical complication of pregnancy among pregnant women residing in low and middle income countries. It is the development of convulsions and or coma that is not related to other cerebral conditions during pregnancy or in the postpartum period in women with signs and symptoms of preeclampsia. It is responsible for the majority of poor maternal and fetal outcomes globally. In many developing countries such as Nigeria, eclampsia remains a significant contributor to adverse maternal and perinatal outcomes despite all measures to reduce its incidence and impact.

Aim: The aim of the study was to assess the knowledge of eclampsia among pregnant women attending a tertiary antenatal clinic in Ikenne Remo, Ogun state, Nigeria.

Study Design: Quantitative cross-sectional descriptive survey design.

Methodology: Ninety four (94) pregnant women attending antenatal clinic at a tertiary hospital in Ikenne Remo, Ogun state participated in the study. The level of knowledge was assessed by administering a quantitative instrument developed in a structured close ended questionnaire form. The questionnaire had two (2) sections; Section A: Socio demographic and Section B: Knowledge.

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Results: Findings indicated that majority of the pregnant women, 41.5% had fair level of knowledge of eclampsia while 33% had high level of knowledge and 25.5% had poor level of knowledge of eclampsia. The study identified that age, religion, ethnicity and parity were significantly related with level of knowledge of the pregnant women while educational level of the pregnant women wasn't significantly related with their level of knowledge about eclampsia.

Conclusion: The study illustrates that knowledge of eclampsia are limited among pregnant women attending a tertiary antenatal clinic in Ogun state, Nigeria; there are gaps in knowledge regarding the causes, danger signs and risk factors of the condition. Therefore, health care providers should be equipped with appropriate skills and relevant materials to provide proper prenatal education and sensitization to improve maternal and perinatal health.

Keywords: Eclampsia; morbidity; knowledge; preeclampsia; Nigeria.

1. INTRODUCTION

About ten per cent (10%) of all pregnancies are complicated by hypertension worldwide, with about half of these cases accounted for by eclampsia and preeclampsia worldwide [1]. Hypertensive disorder of pregnancy (HDP) are among the most common medical complications of pregnancy that affect about 7-10% of all pregnant women, and they are a significant cause of maternal and perinatal morbidity globally [2].

Hypertensive disorders of pregnancy (HDP) have reported accounting for about 14% of maternal deaths globally, approximately 42,000 each year, with about 99% of these deaths occurring in low resource settings and less than 1% in high-income settings [1,3]. Hypertensive disorder of pregnancy is an umbrella term for preexisting (chronic hypertension) and gestational hypertension, preeclampsia and eclampsia, with preeclampsia and eclampsia being responsible for the majority of poor maternal and fetal outcomes [1,3].

Maternal mortality is excessively high. An estimated 295,000 maternal deaths occurred in 2017 globally, among which 94% occurred in low-resource setting countries with sub-Saharan Africa and southern Asia accounting for approximately 86% (254,000) of these deaths [4]. More than 70% of maternal deaths are due to five major complications: infection, hemorrhage, obstructed labor, unsafe abortion and hypertensive disorders of pregnancy (especially preeclampsia and eclampsia) [5,6].

Eclampsia is considered a complication of severe preeclampsia during pregnancy, and it occurs after the 20th week of gestation or in the postpartum period. It is the development of convulsions and or coma that is not related to

other cerebral conditions during pregnancy or in the postpartum period in women with signs and symptoms of preeclampsia [7,8]. Eclampsia has been a threat to maternal survival in Nigeria, as it is one of the major causes of maternal mortality [9].

Eclampsia often results from wrong diagnosis (recognition) and improper management of preeclampsia. Preeclampsia is a condition that develops during pregnancy and is characterized by high blood pressure (hypertension) and protein in the urine (proteinuria). Monitoring and early diagnosis of preeclampsia in pregnant women and effective treatment can prevent eclampsia [10].

Eclampsia is reported to have 0.3% prevalence globally [1]. It is associated with a risk of 0-1.8% for maternal death in developed countries. However, the maternal mortality rate may be as high as 14% in developing countries; it accounts for a significant number of maternal deaths in Africa and Asia. Each year approximately 63,000 women worldwide die of eclampsia and preeclampsia, and 99% of these deaths occur in low-income countries [2,11].

In 2017, Nigeria accounted for a significant proportion of maternal deaths globally. The maternal mortality ratio in Nigeria as of 2017 was estimated to be 917 per 100,000 live births. In many developing countries such as Nigeria, eclampsia remains a significant contributor to adverse maternal and perinatal outcomes despite all measures to reduce its incidence and impact [3,4]. In Nigeria, over 50% of maternal mortality is caused by hemorrhage and preeclampsia/eclampsia. With progresses in preventing hemorrhage-related deaths, hypertensive disorders have become Nigeria's leading cause of maternal mortality, accounting for 29% of these deaths in tertiary hospitals [12].

Nigeria has a high prevalence of preeclampsia and eclampsia of between 2% to 16.7% [13]. The incidence of eclampsia reported varies in different parts of Nigeria. Eclampsia contributes 31.3%-43.1% to maternal death in the Northern part of the country, with a maternal mortality ratio (MMR) of 1,200 per 100,000 live births. In the south-west and south-south parts of the country, the maternal mortality ratio is lower; it is about 500 per 100,000 live births. Eclampsia accounts for 27.5%-40% of maternal deaths in this part of the country [9]. A study conducted in Ogun State, Southwestern Nigeria found that location, time, obstetric condition, and socio-cultural characteristics influence health-seeking behaviors among pregnant women [12]. A study carried out by Akadri et al., (2020) on the prevalence of hypertensive disorder of pregnancy in Babcock University Teaching Hospital, Ilishan-Remo, Ogun State, Nigeria, 55 (4.9%) women had hypertensive disorders in pregnancy and Thirty-four (75.5%) of this women had preeclampsia/ eclampsia [14].

Previous studies carried out in a few countries in Africa indicate that eclampsia knowledge among women is generally low [15]. Eclampsia is a disease of signs which requires prompt attention. Early diagnosis and management can reduce the dangers of preeclampsia and eclampsia; most deaths associated with this condition are avoidable when care is given in good time. One major challenge in fighting eclampsia is women's late reporting to healthcare centers following a sign or symptom experience [15,16].

Avoiding delays and "blockages" currently occurring in diagnosis and management are critical. Three phases of delay have been identified; "phase one delay" relate to the time taken to decide to seek care, "phase two delays" involve problems in reaching care and "phase three delays" encompasses issues in the provision of care [17]. Inadequate knowledge is one of the problems hindering the reduction in maternal mortality. Maternal deaths could be prevented if women have adequate knowledge and use good quality services, especially when complications arise. Women equipped with knowledge that experience eclampsia would report early to the hospital, receive timely medical intervention and have fewer adverse outcomes [15,16]. This study is concerned with identifying potential "phase one delays" relating to levels of knowledge. Assessing the knowledge of eclampsia is therefore important among pregnant women attending antenatal clinic in

order to identify gaps and limitation in knowledge. In addition, a better understanding of the knowledge level of eclampsia among pregnant women is necessary as it will facilitate the planning of adequate intervention for the said demographic, it will also inform health care providers on the best methods during antenatal clinic days.

2. MATERIALS AND METHODS

2.1 Study Design

The study applied a quantitative cross-sectional descriptive survey research design.

2.2 Study Setting

The study was carried out in Babcock University Teaching Hospital, Ilishan Remo, Ogun state, South-western Nigeria.

2.3 Study Population

All pregnant women who attended antenatal clinic at Babcock University Teaching Hospital during the course of the study were invited to participate in the study. The study spanned over a period of 4 weeks.

2.4 Sampling Technique / Recruitment of Participants

A purposive Total Enumeration sampling method was adopted for this study. The technique helped to sample the entire population because of the relatively small size of the population. Over the period of the study 100 pregnant women attended antenatal clinic at hospital, only 94 pregnant women gave informed consent and were enrolled in the study while six (6) women didn't give informed consent to participate in the study due to personal reasons.

2.5 Study Instrument

The instrument was self-administered to all members of the target population. Included with the questionnaire was an informed consent form which comprised of the title, purpose, goal and procedure of the study as well as what was required of participants. Post research benefits and detailed contact information of the researchers were also included. The questionnaire was validated by ensuring that the items under each section of the questionnaire

measure the section. The contents of the questionnaire were strengthened through incorporating items plus variable identified from review of literatures related to the title. Feedbacks provided after pilot study by the respondents was incorporated into the instrument. Reliability of the questionnaire was determined by conducting a pilot test using 10% of the calculated sample size. A Cronbach's alpha score of 0.874 was obtained which ensured the reliability of the instrument.

Section A: This assessed pregnant women's socio demographic factors which included their age, age at marriage, marital status, religion, parity, level of education, ethnicity and pregnancy history.

Section B: This assessed pregnant women's knowledge of eclampsia. It consisted of 30 items having a 90-point rating scale with Yes/No/I don't know options (I don't know meaning the respondent is uncertain) and also having options for respondents to pick.

2.6 Data Collection

The instrument developed and validated was taken to the field and permission was obtained from the Chief Medical Director of Babcock University Teaching Hospital. The questionnaires were self-administered by pregnant women. Data was collected by the research assistant over a period of 4 weeks.

2.7 Data Analysis

The data gathered from complete sets of questionnaires were collated, inputted and analysed using the 27th version of the Statistical Package for Social Science (SPSS version 27). The socio-demographic details of respondents were reported using descriptive statistics (frequencies and percentages). Pearson's correlation was used to test for significant relationship between specific socio demographic factors and knowledge level of eclampsia. Confidence interval was set at 95% and Statistical significance was considered at a *p*-value less than 0.05.

3. RESULTS

After the questionnaire retrievals, all the ninety four instruments (94) questionnaires were completely filled.

3.1 Socio Demographic Characteristics

The distribution of pregnant women according to age showed that only 8 (8.5%) were within the age group of 45-49years while almost half 47(50%) of the pregnant women were within the age group of 25-34years. The mean age of the women was 31.2 years (See Table 1). Two-third of the pregnant women 35 (37.2%) got married between the age 20-24years while 29 (30.9%) of the women got married above 29 years of age. Majority of the pregnant women 65 (69.1%) are married, 21 (22.3%) are separated while 8 (8.5%) are single. Most of the pregnant women 37 (39.4%) had secondary school education, while 30 (31.9%) had no formal education. In term of parity, about 13 (13.8%) had more than five children. The religious distributions within the study respondents showed that more than half of the pregnant women 57 (60.6%) were Christians, 37 (39.4%) were Muslim. Majority of the pregnant women 78 (83%) were from the Yoruba ethnic group, 8 (8.5%) were igbo.

3.2 Pregnancy History

Majority of the pregnant women 76 (80.9%) reported they are not having their first pregnancy. Most of the women 56 (59.6%) reported to have attended antenatal care more than four times. Majority of the pregnant 56 (59.6%) are on their 13-27weeks Gestational age. Most of the pregnant women 47 (50%) reported not to know if they have family history of preeclampsia/eclampsia while 28 (29.8%) of the women reported not to have any family history of preeclampsia or eclampsia (see Table 2).

3.3 Knowledge of Eclampsia

Majority of the pregnant women 58 (61.7%) had not heard of preeclampsia, most of the women 45 (47.9%) had not heard of eclampsia while 67 (71.3%) of the women reported to had heard about induced hypertension in pregnancy during lectures in antenatal care. Regarding the knowledge of pregnant women on the danger signs of eclampsia, 47 (50%) rightly identified persistent headaches as a danger sign, 47 (50%) rightly identified convulsion as a danger sign of eclampsia, 67 (67%) rightly identified abdominal pain as one of the danger signs of eclampsia, 33 (36.2%) rightly identified dizziness as a danger sign of eclampsia, over sixty percent of the pregnant 57 (60.9%) were correct about leg and face edema being a danger sign of eclampsia, 65

(69.1%) of the respondent also correctly identified sweating and visual disturbance as one of the danger signs of eclampsia while Majority of the pregnant women 66 (70.2%) wrongly identified nausea and vomiting as one of the danger signs of eclampsia and 56(59.6%) of the pregnant women reported vaginal bleeding as one of the danger signs of eclampsia (Table 3).

In terms of the causes or risk factors of eclampsia, majority of the women 87 (92.6%) rightly identified hypertension as a risk factor for eclampsia, 51 (54.3%) of the women identified prolonged exposure to cold a risk factor of eclampsia, 62 (66%) of the women identified depressive thoughts as a risk factor of eclampsia and over sixty percent 61 (64.9%) identified stress as a risk factor.

Table 1. Socio-demographic characteristics of the pregnant women

Demographic Characteristics	Frequency (n= 94)	Percentage (%)
Age		
15-24 years	13	13.8
25-34 years	47	50.0
35-44 years	26	27.7
45-49 years	8	8.5
Mean Age =31.2 S.D= 5.93		
Age at Marriage		
15-19 years	16	17.0
20-24 years	35	37.2
25-29 years	14	14.9
above 29 years	29	30.9
Marital Status		
Single	8	8.5
Married	65	69.1
Separated	21	22.3
Level of Education		
Non-formal education	30	31.9
Primary education	20	21.3
Secondary education	37	39.4
Tertiary education	7	7.4
Parity(Number of Children alive)		
0	6	6.3
1-2	44	46.8
3-4	31	33
5 +	13	13.8
Religion		
Christianity	57	60.6
Islam	37	39.4
Ethnicity		
Yoruba	78	83.0
Igbo	8	8.5
Others	8	8.5

Table 2. Pregnancy history of the pregnant women

Pregnancy History	Categories	Frequency (n= 94)	Percentage (%)
Is this your first pregnancy	Yes	18	19.1
	No	76	80.9
Antenatal care attended time	One	18	19.1
	Two	2	2.1
	Three	18	19.1
	≥Four	56	59.6
Gestational Age	1-12weeks	9	9.6
	13-27weeks	56	59.6
	> 27 weeks	29	30.9
Family History of Preeclampsia/Eclampsia	Yes	19	20.2
	No	28	29.8
	I don't know	47	50

Table 3. Knowledge of Eclampsia (n= 94)

Knowledge of Eclampsia	Yes	No	I don't know
Have you heard of preeclampsia	19(20.2%)	58(61.7%)	17(18.1%)
Have you heard of Eclampsia	25(26.6%)	45(47.9%)	24(25.5%)
Have you had any formal lecture on pregnancy induced hypertension during your antenatal care activities?	67(71.3%)	20(21.3%)	7(7.4%)
What are Danger signs of Eclampsia			
Persistent headache	47(50%)	37(39.4%)	20(21.3%)
Dizziness	33(36.2%)	34(36.2%)	27(28.7%)
Nausea and vomiting	66(70.2%)	20(21.3%)	8(8.5%)
Back pain	36(38.3%)	33(35.1%)	25(26.6%)
Vaginal bleeding	56(59.6%)	13(13.8%)	25(26.6%)
Abdominal pain	67(67%)	16(17%)	15(16%)
Edema (face, hands or feet)	57(60.9%)	13(13.8%)	24(25.5%)
Convulsion	47(50%)	25(26.6%)	22(23.4%)
Sweating	65(69.1%)	20(21.3%)	9(9.6%)
Visual disturbance	32(34%)	11(11.7%)	51(54.3%)
What are some of the causes/risk factors of Eclampsia			
Prolonged exposure to cold	51(54.3%)	24(25.5%)	19(20.2%)
Hypertension	87(92.6%)	0(0%)	7(7.4%)
Depressive thoughts	62(66%)	11(11.7%)	21(22.3%)
Stress	61(64.9%)	19(20.2%)	14(14.9%)
Preexisting hypertension	72(76.6%)	11(11.7%)	11(11.7%)
Malaria	58(61.7%)	17(18.1%)	19(20.2%)
Lack or loss of blood	79(80.9%)	7(7.4%)	11(11.7)
Evil spirits	13(13.8%)	70(74.5%)	11(11.7%)
Sleeping on a cold floor	7(7.4%)	54(57.4%)	33(35.1%)
Diabetes	60(63.8%)	27(28.7%)	7(7.4%)
Taking cold food or drinks	9(9.6%)	62(66%)	23(24.5%)
Eclampsia can only affect women with chronic hypertension	62(66%)	9(9.6%)	23(24.5%)
Eclampsia can only affect women who do not pray	13(13.8%)	64(68.1%)	17(18.1%)
When is one likely to experience Eclampsia?			
Above 28 weeks of gestation	58(61.7%)	20(21.3%)	16(17%)
Before 20 weeks of gestation	49(52.1%)	22(23.4%)	23(24.5%)
Only after delivery	50(53.2%)	28(29.8%)	16(17%)

3.4 Pregnant Women's Level of Knowledge

This study asked 30 questions focusing on the level of knowledge of eclampsia among the pregnant women attending the antenatal clinic of Ikenne LGA. Maximum score obtainable was 90 with Mean= 44.6±S.D=7.84. The score of the participants was categorized as follows: High (64-90), Fair (32-64) and Poor (1-31). Majority of the pregnant women, 41.5% had fair level of knowledge of eclampsia during pregnancy while 33% had high level of knowledge and 25.5% had poor level of knowledge of eclampsia in pregnancy.

3.5 Relationship between Specific Socio-Demographic Factors and Level of Knowledge

A Pearson Product Correlation analysis was used to determine the relationship between specific socio-demographic factors and the level of knowledge of the pregnant women on eclampsia.

The result of showed that there is relationship between specific socio-demographic factors and knowledge of eclampsia among pregnant women attending antenatal clinic. However, there was no significant relationship between level of education and knowledge of eclampsia among pregnant women attending antenatal clinic ($p > 0.05$). The result implies that age, religion, ethnicity and parity were significantly related with level of knowledge of the pregnant women while there was no significant relationship between the educational level of the pregnant women and their level of knowledge about eclampsia.

4. DISCUSSION

The result of this research revealed that Majority of the pregnant women had fair level of knowledge of eclampsia. Most of the women in this study responded not to have heard of preeclampsia or eclampsia before this is similar to women presented in rural-urban communities of Ogun State [13]. A large percentage of the women have had formal lecture on pregnancy induced hypertension during their antenatal care visits. From the study most of the women did not have adequate knowledge on the danger signs and risk factors of eclampsia. A large percentage of women considered Nausea and Vomiting, sweating and Vaginal bleeding as major danger

signs of eclampsia. This result is associated with the findings of what is obtainable from residents in Ogun State and Osun State [13,9]. A large percentage of the women considered lack or loss of blood, depressive thoughts, prolonged exposure to cold and diabetes a major risk factor of eclampsia, although majority of the women considered hypertension and preexisting hypertension a risk factor of eclampsia, this finding corroborates with the findings of another study carried out in Ogun state that the cause of hypertension in pregnancy was thought to be due to depressive thoughts as a result of marital conflict and financial worries while seizures in pregnancy were perceived to result from prolonged exposure to cold, thus, heat-related local medicines and herbal concoctions were the treatment options [13].

Generally, knowledge of preeclampsia or eclampsia is not common among pregnant women attending secondary and primary health care centre [13]. A similar result was reported among Caribbean American community of Trinidad and Tobago that there was average level of knowledge of eclampsia among pregnant women most possibly as a result of persistent antenatal education services [18]. In another region in the south-west Nigeria, Osogbo, average level of knowledge of eclampsia was also reported because of the entrenched cultural believes about treatment and prevention of eclampsia among pregnant women with secondary school education attending LAUTECH Teaching Hospital Osogbo [9], the study however reported a contrary opinion to this study that there was good level of knowledge of eclampsia among university educated pregnant women attending the teaching hospital [9]. Furthermore, the result is consistent with the findings of a study on the knowledge of eclampsia among women living in Makole ward, Tanzania, that eclampsia knowledge is significantly not predominantly common among pregnant women attending the community health centre [17]. Although the result of this study indicated average level of knowledge of eclampsia, however, this was significantly influenced by several supports from close family relations and health education for pregnant women residing in rural urban communities of low and middle income countries like Tanzania [17].

The study found that age, religion, ethnicity and parity were significantly related to level of knowledge of eclampsia among pregnant women while educational level was not significantly

related to the level of knowledge of eclampsia among the pregnant women in this study. The finding is in tandem with the findings of Chobanian (2013) that age, religion and ethnicity of mother influence the knowledge of eclampsia among pregnant women as it is a condition most often associated with severe maternal-fetal-neonatal complications (including fatalities) [19].

Table 4. Distribution of the level of knowledge of pregnant women regarding Eclampsia

Level of Knowledge of eclampsia	Frequency	Percentage
High (64-90)	31	33
Fair (32-64)	39	41.5
Poor (1-31)	24	25.5
Total	94	100.0
Mean= 44.6±S.D=7.84		

Table 5. Relationship between socio-demographic factors and knowledge of Eclampsia among pregnant women

Socio-demographic Characteristics	Knowledge of Eclampsia			Total	R p-value
	High	Fair	Poor		
Age					
15-24 years	6	4	3	13	0.881
	15.4%	12.9%	12.5%	13.8%	0.001**
25-34 years	18	17	12	47	
	46.2%	54.8%	50.0%	50.0%	
35-44 years	13	6	7	26	
	33.3%	19.4%	29.2%	27.7%	
45-49 years	2	4	2	8	
	5.1%	12.9%	8.3%	8.5%	
Level of Education					
No formal education	13	9	8	30	0.557
	33.3%	29.0%	33.3%	31.9%	0.010
Primary education	12	13	12	37	
	30.8%	41.9%	50.0%	39.4%	
Secondary education	9	7	4	20	
	23.1%	22.6%	16.7%	21.3%	
Tertiary education	5	2	0	7	
	12.8%	6.5%	0.0%	7.4%	
Religion					
Christianity	26	17	14	57	0.728
	66.7%	54.8%	58.3%	60.6%	0.000**
Islam	13	14	10	37	
	33.3%	45.2%	41.7%	39.4%	
Ethnicity					
Yoruba	33	25	20	78	0.291
	84.6%	80.6%	83.3%	83.0%	0.000**
Igbo	2	4	2	8	
	5.1%	12.9%	8.3%	8.5%	
Others	4	2	2	8	
	10.3%	6.5%	8.3%	8.5%	
Parity					
1-2	13	10	5	28	0.601
	33.3%	32.3%	20.8%	29.8%	0.000**
3-4	16	18	15	49	
	41.0%	58.1%	62.5%	52.1%	
5 +	10	3	4	17	
	25.6%	9.7%	16.7%	18.1%	

The result is also in tandem with the findings of [20] that age, religion, pregnancy history is associated with knowledge of eclampsia among pregnant residing in low and middle income countries. Similarly, Opie and Seedat, (2015) found a significant impact of age, religion and ethnicity on the knowledge of eclampsia or hypertension in pregnancy which is well known to vary from place to place, whereby, higher figures can be obtained in urban relative to rural settlements [21]. However, level of education was not significant associated with knowledge of eclampsia in this study, most of the women in this study have only secondary education. This finding is consistent with the findings of Adebayo, (2021) that women from lower educational background have limited knowledge of eclampsia as well as the prevention modalities of eclampsia [22]. The result is consistent with that of Kelani, (2019) that women without the basic level of education, they are high risk of having limited knowledge about eclampsia in pregnancy [23].

5. CONCLUSION

The study illustrates that knowledge of eclampsia are limited among pregnant women attending a tertiary antenatal clinic in Ogun state, Nigeria; there are gaps in knowledge regarding the causes, danger signs and risk factors of the condition. This study highlights the need for strengthening antenatal care services and increase in awareness about eclampsia during antenatal care activities.

6. LIMITATIONS

The study was limited to only one local government Area in the study area. Also, the study was limited to only tertiary hospital in the study area and this was where the study population was derived. Furthermore, respondents may have been bias in their responses given to some items in the instrument since the data retrieved were based on self-reported information from them.

7. RECOMMENDATIONS

1. Health care providers should receive basic and on-going trainings to facilitate dialogue and information for pregnant women.
2. Health workers should embark on a more intensive education of pregnant women on the risk factors, danger signs of eclampsia and the dangers of late (delayed) presentation of cases at health facility.

3. Specially organised health education should be provided for pregnant women with primary education and no formal education attending antenatal clinic on factors associated with eclampsia during antenatal care days.

CONSENT

Informed consent was obtained from all participants.

ETHICAL APPROVAL

Ethical approval was obtained from Babcock University Health Research and Ethics Committee (BUHREC) [Ref. no.: BUHREC201/21]. Furthermore, all information obtained from participants' records were handled with confidentiality and anonymity ensured.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Vousden N, Lawley E, Seed PT, Gidiri MF, Goudar S, Sandall J, et al. Incidence of eclampsia and related complications across 10 low- and middle-resource geographical regions: Secondary analysis of a cluster randomised controlled trial. *PLoS Med.* 2019;16(3):e1002775. Available:<https://doi.org/10.1371/journal.pmed.1002775>.
2. Gasnier R. Eclampsia: An overview clinical presentation diagnosis and management. *MOJ Womens Health.* 2016;3(2):182–187.
3. Adamu AN, Okusanya BO, Tukur J, Ashimi AO, Oguntayo OA, Tunau KA, Ekele BA, Oladapo OT. Maternal near-miss and death among women with hypertensive disorders in pregnancy: A secondary analysis of the Nigeria. Near-miss and maternal death survey. *BJOG: An International Journal of Obstetrics and Gynaecology.* 126 Suppl. 2019;3:12–18. Available:<https://doi.org/10.1111/1471-0528.15427>.
4. WHO World Health Organisation. Maternal mortality; 2019. Available:Maternal mortality (who.int). Last assessed 25th February 2021.

5. Shaimaa Hassan Mohamad, Fatma Mansour Abdel Azeem. Implementing immediate intervention protocol for improving maternity nurse's performance concerning obstetric emergencies. *International Journal of Novel Research in Healthcare and Nursing*. 6(1):886-898. Available: www.noveltyjournals.com
6. Kanté I, Sima M, Coulibaly A, Traoré M, Théra T, Bocoum A, Daou SZ, Kouma A, Fané S, Traoré A, Traore O, Traoré Y, Teguéte I, Maïga B. Analysis of maternal mortality in obstetrics and anesthesia resuscitation in 15 years at Chu Point "G" about 389 cases Bamako/Mali open. *Journal of Obstetrics and Gynecology*. 2020;10:243-253. Available: <https://www.scirp.org/journal/ojog>
7. Ross GM. MEDSCAPE. Eclampsia. Eclampsia: overview, etiologic and risk factors for preeclampsia / eclampsia, multiorgan system effects (medscape.com); 2019. Last assessed 13th January, 2021.
8. Machenzie M, Hinson MR. Eclampsia. In: *statpearls* [Internet]. Treasure Island (FL): statpearls publishing; 2020. [Updated 2020 May 1]. Available: <https://www.ncbi.nlm.nih.gov/books/NBK554392/>
9. Adekanle DA, Akinbile TO. Eclampsia and pregnancy outcome at lautech teaching hospital, Osogbo, South West, Nigeria. *Clinics in Mother and Child Health*. 2012;9:4. Article ID C120301. DOI: <https://doi.org/10.4303/cmch/C120301>
10. Abdinasir Abdullahi Jama. The knowledge and attitude towards preeclampsia among pregnant women attending banadir and medina hospitals in Mogadishu-Somalia; 2019. DOI: <https://doi.org/10.21203/rs.2.18133/v1>
11. Chidi Ochu Uzoma Elike, Ukaegbe Ikechi Chukwuemeka, Okechukwu Bonaventure Anozie, Justus Ndulue Eze, Obioma Christian Aluka, Deirdre Eilleen Twomey. Eclampsia in Rural Nigeria: The unmitigating catastrophe. 2017;16(4):175-180.
12. Pooja S, Karen K, Gloria A, Amy D, Salisu I, Charlotte W. Exploring survivor perceptions of pre-eclampsia and eclampsia through the health belief model. *BMC Pregnancy and Childbirth*. 2019;19: 431. Available: <https://doi.org/10.1186/s12884-019-2582-2>
13. Akeju D, Marianne Vidler, Olufemi T Oladapo, Diane Sawchuck, Rahat Qureshi, Peter von Dadelszen, Olalekan O Adetoro, Olukayode A. Dada and the CLIP Nigeria feasibility working group. Community perception of preeclampsia and eclampsia in Ogun state, Nigeria: a qualitative study. *Reproductive Health*; 2016.
14. Akadri, Adebayo, Osaigbovoh, Imaralu. Hypertensive disorders of pregnancy: A five-year review in Babcock university teaching hospital, Ilishan-Remo, Ogun State, Nigeria. *Babcock University Medical Journal (BUMJ)*. 2020;3:67-72. DOI: 10.38029/bumj.v3i1.35.
15. Oyira, Emilia, Mgbekem, Mary, Okon, Abigail. Knowledge, attitude and preventive practices towards pregnancy induced hypertension among pregnant women in general hospital Calabar, Cross River State, Nigeria. *Pakistan Journal of Social Sciences*. 2009;6(1):1-5.
16. Fondjo LA, Boamah VE, Fierti A, Gyesi D, Owiredu EW. Knowledge of preeclampsia and its associated factors among pregnant women: a possible link to reduce related adverse outcomes. *BMC Pregnancy and Childbirth*. 2019;19(1):1-7.
17. Savage AR, Hoho L. Knowledge of preeclampsia in women living in Makole Ward, Dodoma, Tanzania. *African Health Sciences*. 2016;16(2):412-419.
18. Abou Zahr GO, Royston YA. Misconceived mortality: Solitary birth and maternal mortality among the rarámuri of Northern Mexico. In *maternal death and pregnancy-related morbidity among indigenous women of Mexico and Central America*. Springer, Cham. 2017;349-368.
19. Chobanian G, Colombi I. New blood pressure cut off for preeclampsia definition: 130/80 mmHg. *European Journal of Obstetrics and Gynecology and Reproductive Biology*. 2013;240:322-324.
20. Onwuchekwa AO, Mezie-Okoye AF, Babatunde OO. L-Arginine levels among hypertensive patients in Sokoto, North Western Nigeria. *Open Journal of Blood Diseases*. 2017;7(01).
21. Opie HO, Seedat RA. A systematic review of the effectiveness of lifestyle and medication: Interventions in the management of hypertension in pregnancy; 2015.
22. Adebayo JA. Efficacy of nifedipine versus hydralazine in the management of severe hypertension in pregnancy: A randomised

- controlled trial. Nigerian Postgraduate Medical Journal. 2021;27(4):317.
23. Kelani OA, El-Halaby AEDF, El-Shamy ESA, Abd El-Fattah TN. Comparison between intracervical Foley catheter plus misoprostol and misoprostol alone for labor induction. Menoufia Medical Journal. 2019; 32(4):1393.

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